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U.S. INTEREST IN PANAMA CANAL

95-1

HEARINGS

BEFORE THE

SUBCOMMITTEE ON THE PANAMA CANAL

OF THE

COMMITTEE ON MERCHANT MARINE AND FISHERIES

HOUSE OF REPRESENTATIVES

NINETY-FIFTH CONGRESS

FIRST SESSION

ON

U.S. VITAL INTEREST IN THE PANAMA CANAL

JULY 25, 26, 27, 1977

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U.S. VITAL INTERESTS IN THE PANAMA CANAL

MONDAY, JULY 25, 1977

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PANAMA CANAL,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:08 a.m., in Room 1302, Longworth House Office Building, Hon. Ralph H. Metcalfe (chairman) presiding.

Mr. METCALFE. The subcommittee on Panama Canal will come to order.

The hearings for the next three days are being held by the Panama Canal Subcommittee in order to examine what vital interests the U.S. has in the Panama Canal Zone during the remaining years of the 20th Century.

To explore what, in fact, are our interests in the Panama Canal is of paramount importance if we are, in fact, to pursue for the U.S. and the world a positive and constructive course of action.

In attempting to ascertain what our vital interests may be, we must deal with facts, not rhetoric, reality and not myths. We must approach the subject with a certain sensitivity to the opinions of other nations.

The subcommittee will look at three specific areas during the next few days: specifically, the economic value of the Panama Canal to the U.S.; the military value of the Panama Canal and the Panama Canal Zone to the U.S.; and, thirdly, we will examine how our presence in the Canal and the Canal Zone affects our relations with other countries.

Although I do not think that we should conduct our foreign policy by polling other nations, I nonetheless think that the increasing interdependence of the various nations of the world compels us to show a certain sensitivity towards the aspirations and concerns of other nations. To quote Edmund Burke: "Nothing is so fatal to a nation as an extreme of self-partiality and the total want of considerations of what others naturally hope or fear."

As I stated on the floor of the House on May 19th of this year: "The facts of the Panama Canal situation ought to be set before the American people. We have an obligation to respect the expressed viewpoints of our constituents. But we have an equal obligation, as leaders and representatives, to communicate to the people certain

facts and realities. Experience has shown that the American people will respond rationally, compassionately, and wisely, when the facts of a particular situation are made clear."

These hearings will be conducted in a fair, impartial, objective, and, I certainly anticipate, bipartisan manner.

I now invite the Minority Member from California, Mr. Dornan, if he wishes to make an opening statement.

Mr. DORNAN. Mr. Chairman, I have no opening statement. I appreciate your calling these hearings. You recall on our trip down to the Panama Canal area in February, at the press conference, I said that I was afraid the impression was being given in Panama and throughout Central and South America that all was going to be resolved with a new treaty on Contadora Island, when, in fact, major decisions would be made here in the Senate and House of Representatives. I hope these hearings will help to further that impression throughout the world. The Congress is going to play, I believe, the vital role in what happens as far as the future of our country is concerned with the history of that area.

Mr. METCALFE. Thank you very much. We are delighted that you are able to be here.

The first panel will consist of General Harold Parfitt, Dr. Stephen R. Gibbs, Dr. Margaret Hayes, and Mr. Leonard Kujawa. We are especially pleased this morning to have a very competent panel of witnesses on the subject of U.S. Vital Economic Interests in the Canal.

This panel includes:

—Governor Harold R. Parfitt, of the Canal Zone, whose dynamic policy and previous cogent testimony dismiss the need for any lengthy introduction to the subcommittee. Permit me to say that the Governor is, of course, acutely aware of all the financial operations of the Panama Canal Company, and that he was Lieutenant Governor in the 1960's previous to his present position.

—Dr. Stephen Gibbs, now with the Institute for Marine Studies at the University of Washington, is an accomplished scholar on the Canal as a transportation artery. He co-authored with Norman Padelford a volume on *Maritime Commerce and the Future of the Panama Canal.* His thesis at M.I.T., for a Doctor of Philosophy degree in Ocean Engineering, was a multi-objective analysis of the Panama Canal as a marine transportation system.

—Dr. Margaret Daly Hayes is a senior research associate in the Policy Sciences Division of CACI, a think-tank-type firm that provides professional services for the solution of managerial and operational problems. She received her doctorate in political science from Indiana University, and the areas she has given special analytic attention are Latin America, Europe and the developing world in general. Dr. Hayes is a frequent lecturer on Latin American affairs and has written on the economic prospects of various nations and has done one project on Downstream Implications of Panama Canal Treaty Negotiating Options.

—Leonard Kujawa is a partner in the accounting firm of Arthur Andersen & Company. He is a certified public accountant and a member of the American Institute of Certified Public Accountants and other professional organizations. He has spent 20 years concen-

trating on the finances of rate-regulated utilities and governmental organizations. Mr. Kujawa has done numerous studies on the tolls structure of the Panama Canal and the financial mechanisms by which the Canal is governed.

I have just been informed by staff that Congressman Snyder has sent a statement which he wishes read.

Mr. DORNAN. This statement is by Honorable Gene Snyder, of Kentucky.

STATEMENT OF HON. GENE SNYDER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF KENTUCKY

"Mr. Chairman, I must file a protest against the haste with which the Majority's hearings have been rushed into being, and accordingly state that I will absent myself from them.

"We all know that this haste was totally due to a fear on the part of the Majority that the proposed treaty with Panama would be sent up here shortly, and the Majority's feelings that the hearings should be held in advance of that event.

Some people may even have hoped the hearings would help grease the skids for that treaty, a treaty by which the American taxpayers would be divested of what may well be their single-most important piece of territory—the Canal Zone, through which the Panama Canal courses from the Atlantic to the Pacific.

"From the list of witnesses slated to appear, I do not expect much of an argument will be heard for keeping the Canal and the Zone which frames its route. I cannot acept the Chairman's statement in his last letter to me dated Friday, July 22, to wit, 'I have no idea as to whether in fact the witnesses know what the State Department's position is.' To make such a statement is comical. The immediately preceding sentence reads, 'the witnesses that have been chosen were asked to participate because of their expertise in the areas which the Subcommittee will be addressing.' If experts, they certainly know the essentials of the proposed treaty.

"As the exchange of correspondence with the Chairman shows, the Minority was offered the opportunity to select one witness for each of the panels to testify for ten minutes, and were such witnesses to participate in these three days of hearings, I am sure a more balanced record of testimony would be produced for the benefit of the public.

"The Chairman scheduled these hearings on June 30th and they were placed on the full Committee's calendar for July. The calendar was mailed out with full Committee Chairman Murphy's accompanying Memorandum, also dated June 30. However, that memo did not state the purpose of the hearing. Moreover, June 30 was the last day Congress was in session, with the July 4th recess following immediately. Hence the memo and calendar did not even arrive in my office until the Members of the House had all left Washington, as is well known to the Subcommittee Chairman.

"Even on the day I returned, the 11th of July, I had not received formal notification from the Chairman in the usual manner, designating the purpose of the hearings and other details. Nor had I on

the 12th. His formal letter was dated the 13th, and I read it upon receipt, Thursday, the 14th of July.

"While my Subcommittee staff assistant may have been aware of the hearings being scheduled, as the Chairman has pointed out, he could not know until the Majority's witnesses were selected and firmed up as definite that those Majority witnesses would exclude those whom he had suggested and which it is anticipated would testify contrary to the Administration's position.

"At the time I received the Chairman's formal letter of the 13th notifying me of the hearings, the Majority's witness list was still not firmed up. Now at that point, on July 14th, there were but six working days before the first scheduled day of these hearings, and it is unreasonable to try to get witnesses in six working days.

"I responded on the same day to the Chairman's letter, stating I would not participate unless we were given at least 30 days' notice within which to invite witnesses, ascertain their willngness to testify, and allow them to be adequately prepared.

"The Chairman answered, also on the 14th, that he had acted within the Committee rules in giving the notice he had. I had not questioned the Chairman's right to set the hearings as he did, but had indicated my conviction that they required much better preparation than the time remaining allowed for the Minority.

"On Monday, July 18th, I wrote the Chairman requesting equal time in September, after the August recess, for completing a better committee record in the hearings with Minority witnesses. I pointed out that even should a new treaty be sent up to the Congress, the Minority would still present its witnesses.

"I received no answer to this request until last Friday, July 22, in a letter from the Chairman dated the 22nd, and handed to my counsel on the subcommittee at 4:35 p.m. I had already taken the 3:59 p.m. plane to Kentucky. In that letter from the Chairman, read to me over the phone at 7:15 last Friday evening by my assistant, and dated the last working day before the opening of the hearings today, the Chairman stated the Minority could have a day of hearings, not equal time, in the last week of July, not in September after the recess—or even in August.

"That gave me not even the six or seven working days' notice I had had in the first place, but only four days if I were to set Minority hearings this Thursday, the 28th, or five days if I were to hold them Friday, the 29th. There is no way a reasonable person could comply with that time requirement.

"This is a remarkably absurd situation, to say the least.

"The Chairman arbitrarily refused my request, stating it would 'stretch out the hearing into September.' He seems to have overlooked the fact that the Congress, by way of its August recess, is stretching out the entire business of the American people into September. He could, had he wished, have made an accommodation, but I realize that might prejudice his objectives which are obviously to bolster the position of the State Department and the Administration in giving away the Panama Canal.

"I fear these hearings will prove to be slanted in their results because of the Majority's choice of witnesses.

"In point of actual fact, the majority of the members of both parties on the Panama Canal Subcommittee and on the full Com-

mittee on Merchant Marine and Fisheries, might be taken as opposed to the State Department's proposed treaty if we were to look at the individual votes on the various amendments I have offered to recent State department authorization and appropriations bills.

"Since the topic of the hearings is to ascertain 'The Vital Interests of the United States in the Panama Canal and Canal Zone,' it is obvious that they are designed to make a record that will conform the proposed treaty to the language that now appears in the law as reflected in the Buchanan Amendments which have been adopted as substitutes for my amendments to the State Department authorization and appropriations bills.

"Clearly, this is in no way a Majority-Minority conflict as far as political parties are concerned. Members of each party on our committee and subcommittee are divided on the treaty question, as well as in the Congress as a whole.

"It is a matter of the highest importance that witnesses should be called who would present arguments opposed to the rationale of the State Department—namely, that the Panama Canal and the Canal Zone no longer retain sufficient economic and strategic military importance to our citizens, and that for the sake of better international relations, the U.S. should surrender that territory and waterway to the demands of Panamanian dictator, Omar Torrijos.

"I regret that the Chairman has not considered my request favorably, in the national best interests of the country."

Mr. METCALFE. Thank you, Mr. Dornan. Just to set the record straight, I would like to make a few comments with regard to the criticism that Mr. Snyder, the ranking Minority Member, has made of these hearings.

It is regrettable that Mr. Snyder will not participate in these important hearings which are attempting to define and clarify U.S. interests in the Panama Canal and Canal Zone. The more members that participate in these hearings, the more of an educative function they will serve for the Congress. But while I regret Mr. Snyder's decision, I think that I, as Chairman, have been more than fair with the Minority.

First, the Minority was told of the general subject of these hearings on June 30, nearly one month ago. We on the Majority side cannot take responsibility for the communication or noncommunication that takes place within the Minority staff and members. The Minority would have been told of these hearings earlier, if a decision had been made to hold them. As events developed, the Minority was informed of the scheduling of these hearings only a day or two after a decision was made.

Second, the basic Minority contention is that there was insufficient time for the Minority to select their witnesses. This belies the fact that several of the witnesses that have been selected by the Majority were contacted and agreed to testify even after Mr. Snyder received correspondence from me on July 14. When the Minority was told verbally about these hearings on June 30, not one witness of whom I am aware was chosen or even contacted. Although there are a limited number of people who are experts on the Panama Canal, I am sure that there are many who would have identified

with the ranking Minority Member and been happy to testify. Unfortunately, I cannot concur with his rationale.

Third, I want to make the point that I alluded to in correspondence to Mr. Snyder. In preparation for these hearings, we have more than complied with the rules. To allow the Minority to dictate the time, the terms, and the setting for these hearings would be an abdication of the responsibility of the Majority and would be an unwholesome precedent not just for this subcommittee but for the entire Merchant Marine Committee. We have indicated on several occasions that we are flexible about the specifics of witnesses and panels. But we cannot consider running these hearings into September when almost assuredly we will have matters more directly connected with a treaty with Panama to worry about.

The ranking Minority Member has asserted that the witnesses have been chosen because they are pro-treaty. First of all, I would ask any intelligent individual to look at the qualifications of the witnesses and assert which one of them is not competent to testify. These are the most qualified individuals in the U.S. on the subject of the Panama Canal, whether they are pro-treaty or anti-treaty.

Second, the rank classification of individuals as being pro-treaty and holding the State Department line, or being anti-treaty and sharing the opinion of the ranking Minority Member, is a type of simplistic thinking that I thought was getting behind us. The Panama Canal issue is complex, full of shades of differences, and can be seen from many perspectives, as the testimony will probably show today. There are lots of "pro-treaty" people who do not agree with the State Department, and there are lots of "anti-treaty" people who don't agree with the ranking Minority Member, if you want to use this classification system.

Third, and most important, the witnesses were chosen because of their particular expertise in a field and not because of their treaty position, because in many instances we do not know their treaty position and because they may not have ever indicated one.

I want to thank the audience for indulging in my statement, and I hope that we can now forget this matter and go on and have some excellent hearings.

PANEL I - ECONOMIC: MAJOR GENERAL HAROLD R. PARFITT, GOVERNOR OF THE CANAL ZONE; DR. STEPHEN R. GIBBS, INSTITUTE FOR MARINE STUDIES, UNIVERSITY OF WASHINGTON, SEATTLE; MARGARET D. HAYES, PH.D., POLICY SCIENCES DIVISION, C.A.C.I., ARLINGTON, VIRGINIA; AND LEONARD KUJAWA, ARTHUR ANDERSEN & CO., CHICAGO, ILLINOIS

Mr. METCALFE. We now recognize Governor Parfitt.

STATEMENT OF MAJOR GENERAL HAROLD R. PARFITT

General PARFITT. Mr. Chairman, with your permission, I would like to cover highlights of my statement and submit the full text for the record.

Mr. METCALFE. If there is no objection, it shall be ordered that the full statement shall be entered into the record. Hearing no objection, it will be entered.

Thank you, and proceed.

[The information follows:]

PRESENTATION BY
GOVERNOR H. R. PARFITT
TO THE PANAMA CANAL SUBCOMMITTEE
OF THE HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE

July 25, 1977

1. Mr. Chairman and members of the Subcommittee, I am Harold R. Parfitt, Governor of the Canal Zone and President of the Panama Canal Company. The Panama Canal Company and the Canal Zone Government are the agencies of the United States responsible for the operation of the Panama Canal and the administration of the Canal Zone.

2. You have asked me to give you my view of the economic importance of the Panama Canal to the United States, and to the economies of the world, and I am happy to be able to do so.

3. The matter of trying to establish even an approximate economic value for the services of the Panama Canal is of considerable complexity because it cannot be measured directly. In a normal marketing situation, value is related to the selling price, which is determined by supply and demand and the practical maximum that traffic will bear. But, Panama Canal tolls are not set at the maximum that traffic will bear. By law, they are set only to recover costs of operation.

4. The value that accrues to a manufacturer, for example, is the excess of his sale price over his costs, in the form of surplus, or profit. For the Panama Canal, because services are priced at cost, the value of the service accrues not to the Canal as profit but to the user as savings, or to put it into economic terms, as a "user's surplus." The economic value of the Canal in a year, then, is the total user's surplus or savings realized by Canal customers.

5. How are these savings measured? We measure them by estimating what the Canal user would have to pay if transport was by the next lowest cost alternative. The savings -- that is, the user's surplus -- is the difference between what is paid to use the Canal and what would be paid if there were no Canal.

6. To look at this another way, if we were to imagine that instead of letting the user have the surplus, the Canal raised its tolls to the maximum that traffic would bear, then the economic value would accrue to the Canal directly in the form of profits. But, what determines the maximum tolls that the Canal can charge? The maximum is equal to the costs of the various alternatives to the Canal for the transport of the multitude of commodities that pass through the Canal. To charge more than any individual commodity will bear in terms of the alternatives open to it is to divert traffic to the competition. Therefore, the economic value of the Canal is defined and limited by the cost of the alternatives.

7. In the last decade or so, a number of studies have touched on this general question of economic value. In 1966, the Arthur D. Little Company analyzed potential Canal revenues as opposed to tolls actually

charged for fiscal 1963. In 1971, the Economic Commission for Latin America (ECLA) (a United Nations organization), completed a study of Canal revenues and estimates of savings to users, and in 1974 the Maritime Administration completed a study of The Panama Canal in U. S. and Foreign Trade.

8. These studies had essentially one focus in their analyses of the economic value: The difference in distance between ports via the Canal versus the shortest alternate all water route. For example: The sea route distance between New York and Los Angeles is shorter by almost 8,000 miles using the Panama Canal versus the Straits of Magellan route. Between New York and Yokohama, the Panama route is about 3,000 miles shorter than the Suez route, its nearest competitor.

9. The effect of A. D. Little's findings imply that the economic value of the Canal to all users in 1963 was equal to one or two times the tolls of that year which were $57.9 million. This is the total economic value to all users, not just the United States.

10. The ECLA study estimated the direct transportation savings to all users of the Panama Canal at an annual average of $540 million in the decade 1960-1970, and at a potential annual average of $805 million between 1970 and 1980.

11. The Maritime Administartion (MARAD) study estimated that a Canal closure would increase the delivered annual price of U. S. exports by $932 million and the annual price of imports by $583 million, including $78 million for intercoastal deliveries. The supporting analysis for the MARAD study is primarily applicable to short-run effects but also represents their view of a "worst-case" situation over the long term.

12. Although the three studies were not exactly comparable, they were primarily based on the assumption that the only alternative to the Panama Canal worth considering was the longer way around, using essentially the same size ships. This was possibly the only true alternative in the Canal's early years, but today's economic and technological environment is considerably different, offering far more competitive alternatives. Thus the economic value of the Canal should be estimated by a comparison with all major alternatives which include alternate modes of transport such as rail, truck, pipeline, and air; the use of larger ships; and new sources of or markets for Canal related commodities.

13. The Canal is now meeting stronger competition from alternatives taking advantage of the economies of scale such as the transportation of commodities in large ships whose daily cost of operation per ton of cargo is in some cases low enough to permit them to go the long way around at lower landed cost than a smaller ship using the Canal. Another

competitor, the shipment of goods by sea and rail via the mini- or landbridge, uses the rapid handling of containerized cargo to marry the advantages of ocean and rail shipments.

14. To date, only one value study has, to our knowledge, taken into account the very real alternatives to the Canal. This study, The Economic Value of the Panama Canal, was prepared by Dr. James E. Howell and Dr. Ezra Solomon of Stanford University in conjunction with a private firm, International Research Associates, in December 1973. The study concluded that in the years between 1975 and 1985 the annual economic value of the Canal to all users would build from $93 million to $141 million, with an average economic value, or user's surplus, of $117 million. The study was based on the traffic forecast and sensitivity analysis of the major commodities moving through the Canal at that time.

15. This $117 million is the "sustainable" user's surplus. By sustainable is meant the equilibrium condition that will occur after a transition period during which the users adjust to more economical alternatives. For example, if tolls are doubled, revenues may double initially, but this would be transitional. In the longer run, as long as five to ten years depending on the commodity, some users would adapt by using more economical alternative arrangements.

16. An addendum to the economic value study reviewed the "short-term" value of the Canal. This study estimated the total first year costs associated with an abrupt closing of the Panama Canal before users made alternative arrangements at $367 million more than the tolls that would have been collected for the year.

17. The benefit of this user's surplus accrues to the various national users through the sellers, the buyers, or the shipping lines. Because the shipping industry is highly competitive, most of the potential savings to the shipping lines are passed along to the sellers or buyers. How the sellers or buyers share the savings depends upon market conditions.

18. Counting its share of savings accruing to sellers and its share of savings accruing to purchasers, it is estimated that the United States benefits to the extent of approximately one-third of the total annual user's surplus, or economic value. The rest of the user nations share the remaining two-thirds of the annual economic value. Japan, the second most important user in terms of cargo, can probably lay claim to 19 percent and Canada to approximately 5 percent, and so forth down the line in order of Canal use. It is not possible for me to determine the impact of this shared user's surplus on the various economies, but I think it is safe to say that the relative impact on smaller economies is greater than that on

the larger ones. The trillion dollar plus U. S. economy, for instance, dwarfs the almost $40 million user's surplus estimated for the United States.

19. The $117 million user's surplus relates to the amount by which Canal tolls could be increased under the circumstances obtaining at the time of the study, 1973. As those circumstances change, as for instance with changes in oil prices, the Canal's competitive position changes, moving the user's surplus up or down accordingly.

20. Precision in estimating the user's surplus and thus the amount by which tolls can be increased is obviously not possible but we do know that the freedom to raise tolls is more limited than before since the costs of alternatives are nearer to the cost of using the Canal.

21. I have talked about some of the theoretical aspects of economic value -- theory which enables us to appreciate the relative importance of the Panama Canal to United States and world commerce. The Canal may be thought of, however, in other, more absolute terms.

22. There is ample evidence that an absolute advantage to world trade exists that permits the Canal to retain its importance. There are today, for instance, almost 25,000 vessels of 1,000 gross registered tons and over, out of an approximate world fleet of 27,000, that can transit the Panama Canal, and some 4,000 actually do use the Canal.

23. Approximately 921 vessels, or 96 percent of the U. S. merchant fleet (active and inactive), are able to pass through our locks and some 98.0 percent of our U.S. Navy vessels can do so.

24. Last year, a poor year by Canal standards, nearly 12,300 transits through the Canal were made by vessels flying the flags of 65 nations. U. S. flag vessels alone made 1,064 transits, or almost nine percent of the total. The United States was, in fact, number three in transits in fiscal year 1976.

25. Commercial cargo tonnage through the Canal is another important index of utility.

26. In fiscal year 1976, approximately 117 million tons of commercial cargo passed through the Canal, down sharply from the 1974 level of 147 million tons because of recession and other factors, but up by over 30 million tons from 1967, a decade ago. Of the 117 million tons in 1976, over 78 million originated in or was destined for the United States including intercoastal cargo (49 million originated in; 24 million destined for; 5 million in intercoastal trade.) According to figures available to the Company, this cargo volume represented 21 percent of the total U.S. seaborne commerce of the United States compared with about 15 percent as an average for the prior decade.

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27. In U. S. foreign trade this cargo included approximately 28 percent of our total coal exports, 15 percent of coarse grain exports and 26 percent of all phosphates sent abroad. Import tonnages were less substantial and it is interesting to note that one item of major importance to the United States, crude petroleum, passes through the Canal in relatively minor quantities. In 1976, U. S. crude oil imports through the Panama Canal totaled 3.2 million long tons compared to 1.3 million tons in 1967.

28. U. S. intercoastal traffic through the Canal has declined substantially from its peak of 13.5 million tons in 1924, but was still 4.7 million tons last year and may indeed rise again if the Alaskan North Slope crude oil moves through the Canal as now planned.

29. Information received on July 20, 1977, indicates that the amount of North Slope oil now scheduled to transit the Panama Canal is about 200,000 barrels, or 29,000 long tons, per day which equals to an average of 1.3 transits daily (including laden and ballast). Original estimates were for about 70,000 long tons to pass through the Canal daily which would have generated some 3 transits a day.

30. The lower volume is attributable to the recent damage to Pump Station No. 8 on the trans-Alaksa pipeline which oil industry sources indicate may take from 9 to 15 months to repair. Once the pump station is repaired, or replaced, it is possible that the amounts originally estimated will transit the Canal.

31. Needless to say, the value of the Panama Canal under such circumstances would be extremely difficult to quantify since both the potential volume and duration of North Slope oil through the Canal are conjectural at this point.

32. Other countries are even more dependent on the Panama Canal for the movement of their seagoing tonnage. For example: In 1974, some 73 percent of Ecuador's imports and exports were Canal oriented, and in the case of Peru, almost half of their tonnage passed through the Canal. Generally, most Central American and West Coast South American countries rely heavily on the Canal.

33. The fact that cargo tonnage through the Panama Canal has increased in a rather steady fashion over the years and is forecast to continue to increase, reinforces my firm conviction that the Panama Canal serves and will continue to serve a useful function. If the past may be thought of as prologue, it helps to balance perspective by noting that total commercial cargo tonnage through the Canal increased by almost 400 percent between 1948 and 1976.

34. The increase over the last twenty-eight years has been relatively steady with only five years of cargo decline due to recessions in the

entire period. And, incidentally, we have measured our historic growth to 1976, itself a recession year in which Canal cargo dropped by 30.0 million tons from the 1974 high.

35. This year (FY 1977) cargo shipments are once again on the rise with an increase in the first nine months of the year of 5.5 million tons, or 6.4 percent ahead of the same period last year.

36. Thus far, our discussion has been keyed generally to the past and the present. I would now like to talk about my view of the future, including our forecast of traffic and our financial viability and capital funding.

37. A series of events have combined to change the possible future level of Canal traffic and tolls revenue. Since just 1974, world trade has slumped in the most severe recession since the 1930's, and the Suez Canal has reopened, siphoning off substantial amounts of Panama Canal traffic. The pattern of Canal traffic seems to be entering a phase of indefinite duration of more moderate growth than experienced in the last thirty years.

38. As in the past post-war period, future Canal traffic will certainly be subject to unforeseen outside political and economic factors and cyclical variation must be expected as a matter of course. Likewise, certain fundamental aspects of world trade such as growth itself and the specialization of transportation modes must be thought of as forming the backdrop for Canal traffic over time. But given these basic elements of trade through the Canal, it is also apparent that a consensus is forming: continued growth but at more moderate rates.

39. Our latest in-house forecast of Canal traffic and tolls revenue at current rates foresees oceangoing transits rising from 33.4 in fiscal 1977 to 40.6 per day in 1990 or 12,200 and 14,835, respectively. During the period, average vessel size is expected to go from 11,420 Panama Canal net tons to 13,000 tons. Tolls revenue is expected to increase from $166.6 million in 1977 to $240.0 million in 1990 at present toll rates.

40. If we simply extrapolate the estimates to the year 2000, transits would reach 17,000 or 46.6 per day, while tolls revenue would be almost $300.0 million by the end of the century. It is fair to note, however, that our forecast is considerably more conservative than that prepared by the Interoceanic Canal Study Commission in 1970 in conjunction with the feasibility studies for the sea level canal. It is also slightly more conservative than our last long term forecast (to 1985) prepared by Economics Research Associates for the Panama Canal Company in 1974.

41. Forecasting tolls and transits that far into the future is a hazardous undertaking and while we have presented our best estimate of the underlying trend of Canal traffic, events such as war or new discoveries (e.g., North Slope oil) could change the estimates.

42. The Company is required by law to set tolls to recover all costs of operating and maintaining the Canal. If our forecast of growth in tolls revenue is reasonably correct, and if historic inflationary cost patterns continue, it will be necessary to adjust tolls periodically to break even, just as we have had to adjust upward the tariffs charged our employees. Since inflation should impact concurrently on the costs of alternatives to the Canal, I view such adjustments to tolls as normal price adjustments which should obviate the necessity for future subsidies. I do not envision these periodic adjustments eroding the comparative advantage provided by the Canal, that is, the Canal's economic value, and therefore feel that they will not have a depressant effect on predicted traffic growth.

43. Given the transit forecast to the end of the century, I foresee no difficulties with numerical capacity as a limitation on growth. The dimensions of our locks, however, are a limiting factor since they prevent Canal traffic from taking full advantage of the economies of scale. As a result, toward the end of the century some growth which might otherwise accrue to the Canal could be siphoned off by competition which can take advantage of those economies of scale.

44. Although the forecasts do not envision our reaching numerical capacity, this does not mean that we can skimp on capital expenditures to replace and improve Canal facilities. As facilities age and the average ship using the Canal gets bigger, it is incumbent upon Canal management to replace plant with equal or better facilities. Our concern is with the safe and expeditious handling of all ships, not just for their sake but also to ensure the safety of the thin artery that is the Panama Canal.

45. To look at it another way, expenditures on capital replacement and improvements provided from cash flow are a means of protecting the gross investment of the United States in the Canal. In May 1976, the General Accounting Office (GAO), reporting on the financial status of the Panama Canal Company and Canal Zone Government for fiscal years 1974 and 1975, included in their audit a summation of the gross investment of the United States in the enterprise since its inception. Updated through 1976, that gross investment, which does not include defense investments, is about $1,886 billion. Recoveries have amounted to about $1.134 billion, leaving an unrecovered investment of approximately $752 million.

46. The Panama Canal enterprise is required by law to recover its costs of operation and maintenance. It is not, nor was it intended to be, a profit generating entity and thus does not calculate return on investment in a commercial sense. The return to the United States on its investment in the Canal enterprise, however, can be thought of to include interest and dividend payments to the U. S. Treasury as well as the U. S. share of the user's surplus which has accrued over time. I anticipate that the Canal could continue to provide a return on investment to the United States even though heavier traffic demands than those predicted could possibly increase our need for capital funds for modernization beyond what the enterprise can finance internally.

47. In summary, let me emphasize that whether we look at the importance of the Canal in the narrow terms of economic value defined as the relative range within which tolls can be raised, or whether we look at the importance in terms of the absolute value reflected in the continued heavy use of the Canal, we can see that the Canal is still viable and capable of continuing to provide quality service to at least the end of this century.

48. Mr. Chairman, this completes my opening statement. I will be happy to answer any questions you may have and to offer for the record any additional information that may be required.

General PARFITT. The matter of trying to establish even an approximate economic value for the services of the Panama Canal is of considerable complexity because it cannot be measured directly. In a normal marketing situation, value is related to the selling price, which is determined by supply and demand and the practical maximum that traffic will bear. But, Panama Canal tolls are not set at the maximum that traffic will bear. By law, they are set only to recover costs of operation.

The value that accrues to a manufacturer, for example, is the excess of his sale price over his costs, in the form of surplus, or profit. For the Panama Canal, because services are priced at cost, the value of the service accrues not to the canal as profit but to the user as savings, or to put it into economic terms, as a "user's surplus." The economic value of the Canal in a year, then, is the total user's surplus or savings realized by Canal customers, that is, that the difference between what is paid to use the Canal and what would be paid if there were no Canal.

In the last decade or so, a number of studies have touched on this general question of economic value. In 1966, the Arthur D. Little Company analyzed potential Canal revenues as opposed to tolls actually charged for fiscal 1963. In 1971, the Economic Commission for Latin America (ECLA), a United Nations organization, completed a study of Canal revenues and estimates of savings to users, and in 1974 the U.S. Maritime Administration completed a study of The Panama Canal in U.S. and Foreign Trade.

These studies had essentially one focus in their analyses of the economic value: The difference in distance between ports via the Canal versus the shortest alternate all-water route.

Although the three studies were not exactly comparable, they were primarily based on the assumption that the only alternative to the Panama Canal worth considering was the longer way around, using essentially the same size ships. This was possibly the only true alternative in the Canal's early years, but today's economic and technological environment is considerably different, offering far more competitive alternatives.

The Canal is now meeting stronger competition from alternatives taking advantage of the economies of scale such as the transportation of commodities in large ships whose daily cost of operation per ton of cargo is in some cases low enough to permit them to go the long way around at lower landed cost than a smaller ship using the Canal. Another competitor, the shipment of goods by sea and rail via the mini- or landbridge, uses the rapid handling of containerized cargo to marry the advantages of ocean and rail shipments.

To date, only one value study has, to our knowledge, taken into account the very real alternatives to the Canal. This study, The Economic Value of the Panama Canal, was prepared by Dr. James E. Howell and Dr. Ezra Solomon of Stanford University in conjunction with a private firm, International Research Associates, in December 1973. The study concluded that in the years between 1975 and 1985 the annual economic value of the Canal to all users would build from $93 million to $141 million, with an average economic value, or user's surplus, of $117 million. The study was based on the traffic forecast and sensitivity analysis of the major commodities moving through the Canal at that time.

This $117 million is the "sustainable" user's surplus. By sustainable is meant the equilibrium condition that will occur after a transition period during which the users adjust to more economical alternatives. For example, if tolls are doubled, revenues may double initially, but this would be transitional. In the longer run, as long as five to ten years, depending on the commodity, some users would adapt by using more economical alternative arrangements.

The benefit of this user's surplus accrues to the various national users through the sellers, the buyers, or the shipping lines. Because the shipping industry is highly competitive, most of the potential savings to the shipping lines are passed along to the sellers or buyers.

It is estimated that the U.S. benefits to the extent of approximately one-third of the total annual user's surplus, or economic value. The rest of the user nations share the remaining two-thirds of the annual economic value. It should be noted that the relative impact on smaller economies, however, is greater than that on the larger ones.

Precision in estimating the user's surplus and thus the amount by which tolls can be increased is obviously not possible, but we do know that the freedom to raise tolls is more limited than before since the costs of alternatives are nearer to the cost of using the Canal.

I have talked about some of the theoretical aspects of economic value—theory which enables us to appreciate the relative importance of the Panama Canal to U.S. and world commerce. The Canal may be thought of, however, in other, more absolute terms.

There is ample evidence that an absolute advantage to world trade exists that permits the Canal to retain its importance. There are today, for instance, almost 25,000 vessels of 1,000 gross registered tons and over, out of an approximate world fleet of 27,000, that can transit the Panama Canal.

Ninety-six percent of the U.S. merchant fleet and 98 percent of our U.S. Navy vessels are able to pass through the Canal locks.

Commercial cargo tonnage through the Canal is another important index of Canal utiity.

In fiscal year 1976, approximately 117 million tons of commerical cargo passed through the Canal, down sharply from the 1974 level of 147 million tons because of recession and other factors.

Of the 117 million tons in 1976, over 78 million originated or was destined for the U.S. This cargo volume represented 12 percent of the total U.S. seaborne commerce.

U.S. intercoastal traffic through the Canal has declined substantially from its peak, but was still an impressive 4.7 million tons last year and may indeed soar again if the Alaskan North Slope crude oil moves through the Canal as now planned.

Latest estimates are that 29,000 long tons per day (1.3 transits) will move through the Canal. This could increase to 70,000 long tons per day (3 transits) when damage to Pump Station No. 8 is repaired. However, both the volume and duration of North Slope oil through the Canal are conjectural at this point.

Other countries are even more dependent on the Panama Canal for the movement of their seagoing tonnage. For example: In 1974, some 73 percent of Ecuador's imports and exports were Canal oriented, and in the case of Peru, almost half of their tonnage passed through the Canal. Generally, most Central American and West Coast South American countries rely heavily on the Canal.

The fact that cargo tonnage through the Panama Canal has increased in a rather steady fashion over the years and is forecast to continue to increase, reinforces my firm conviction that the Panama Canal serves and will continue to serve a useful function.

It helps to balance perspective by noting that total commercial cargo tonnage through the Canal increased by almost 400 percent between 1948 and 1976.

And, 1976, itself, was a recession year in which Canal cargo dropped by 30 million tons from the 1974 high.

This year (fiscal year 1977) cargo shipments are once again on the rise with an increase in the first nine months of the year of 5.6 million tons, or 6.4 percent ahead of the same period last year.

I would now like to talk about my view of the future, including our forecast of traffic and our financial viability and capital funding.

Our latest forecast is that transits will rise from 33.4 per day in fiscal year 1977 to 46.6 per day in the year 2000, and tolls revenues at current rates will increase from $166.6 million to $300 million in the same period. Forecasting tolls and transits that far into the future is a hazardous undertaking, and while I have presented our best estimate, events such as war or new discoveries (for example, North Slope oil) could change the estimates.

The Company is required by law to set tolls to recover all costs of operating and maintaining the Canal. If our forecast of growth in tolls revenue is reasonably correct, and if historic inflationary cost patterns continue, it will be necessary to adjust tolls periodically to break even. Since inflation should impact concurrently on the costs of alternatives to the Canal, I do not envision these periodic adjustments eroding the comparative advantage provided by the Canal.

Given the transit forecast to the end of the century, I foresee no difficulties with numerical capacity as a limitation on growth. This does not mean that we can skimp on capital expenditures to replace and improve Canal facilities. As facilities age and the average ship using the Canal gets bigger, it is incumbent upon Canal management to replace plant with equal or better facilities. Our concern is with the safe and expeditious handling of all ships, not just for their sake, but also to ensure the safety of the thin artery that is the Panama Canal.

To look at it another way, expenditures on capital replacement and improvements provided from cash flow are a means of protecting the gross investment of the U.S. in the Canal.

Updated through 1976, that gross investment, which does not include defense investments, is about $1.886 billion. Recoveries have amounted to about $1.134 billion, leaving an unrecovered investment of approximately $752 million.

The Panama Canal enterprise is required by law to recover its costs of operation and maintenance. It is not, nor was it intended to be, a profit generating entity and thus does not calculate return on investment in a commercial sense. The return to the U.S. on its investment in the Canal enterprise, however, can be thought of to include interest and dividend payments to the U.S. Treasury as well as the U.S. share of the user's surplus which has accrued over time.

I anticipate that the Canal could continue to provide a return on investment to the U.S. even though heavier traffic demands than those predicted could possibly increase our need for capital funds for modernization beyond what the enterprise can finance internally.

In summary, let me emphasize that whether we look at the importance of the Canal in the narrow terms of economic value defined as the relative range within which tolls can be raised, or whether we look at the importance in terms of the absolute value reflected in the continued heavy use of the Canal, we can see that the Canal is still viable and capable of continuing to provide quality service to at least the end of this century.

Mr. Chairman, this completes my opening statement. I will be happy to answer any questions you may have and to offer for the record any additional information that may be required.

Mr. METCALFE. Thank you, Governor. I think we should hear the testimony of the other panelists, and then we will have a question period.

Now, I invite Dr. Stephen R. Gibbs, of the Institute for Marine Studies, of the University of Washington, Seattle, to make the next statement.

Dr. Gibbs?

STATEMENT OF DR. STEPHEN R. GIBBS

Dr. GIBBS. Thank you very much, Mr. Chairman.

This is the first time I have been invited to appear before a subcommittee. It is a great honor for me. I hope that what I have to say here today will be of use to your work.

Now I will proceed with my summary.

While a graduate student at the Massachusetts Institute of Technology, I analyzed the economic value of the present Panama Canal to the world and to various countries and regions of the world, including the United States. In addition, some of the arguments which have been raised regarding the strategic significance of the waterway were explored.

An article describing my investigations is forthcoming in the journal "Water Resources Research."

Mr. Chairman, economic analysis is fundamentally forward looking. It attempts to ascertain the effect of today's decisions on near and far term economic welfare and then to restate the effect as simple dollar values expressed as a lump sum. The term for this sum is a net present value. A reasonable person or entity should, in principle, be indifferent between being offered the near and far term economic benefits actually at hand and the lump sum which is the restated form for these benefits.

The basic measure of benefit for my analysis is the value of the transit service to the Canal users.

As a reference against which to measure the Canal's value, it is assumed that, for whatever reason, the services of the Canal are suddenly and permanently denied to users in 1975. This might take the form of a canal closure. In this context the Canal's net present economic value to the world was in the range of $5.4 to $6.9 billion as of 1975. Its value in 1977 terms is roughly 20 percent higher due to the effects of inflation on the value of the dollar. Please see Table 1 of my statement. Also, this range bounds, in principle the price which the owner of the Canal should set were it to be sold to a buyer whose pricing policy was known to be monopoly profit maximization.

The fraction of the world value which the United States would lose if the Canal ceased to function is roughly 27 percent, or from $1.8 to $2.4 billion net present value in 1977 dollars. Actually these later figures are too large because some important effects, which would follow a closure, which have not been estimated in detail, would offset the loss of the United States and other world regions, and increase the Republic of Panama's loss. It is sufficient for my purpose to note that the figures given are estimates of the upper limit of U.S. loss.

Other regions of the world which would suffer losses of economic welfare if the Panama Canal were to close, are Japan, 17.5 percent of the total; South America, 16.5 percent, and Central America, 5.2 percent, among others. Please see Table 2 of my statement. The actual loss to the Republic of Panama would be much larger than the percentage for Central America listed in Table 2 suggests due to the same effects which tend to reduce the United States loss.

Were the Canal to deny its service to users, the loss to the world in the first year would be on the order of $2 billion, and the U.S. loss would probably not exceed roughly $500 million that year. As time passed, additional losses would occur. These figures for both first year and net present value losses are infinitesimal when compared to the U.S. Gross National Product.

Mr. Chairman, the loss suffered by the world as calculated in the context of a Canal closure is just one possible way to measure the

Canal's value. Another way, is to consider the consequences of selling it to an entity having an operation policy different than that of the U.S. Very likely any buyer of the Canal would adopt a monopoly profit-maximizing policy.

In principle, a monopoly profit-maximizing buyer should be willing to buy the Canal for a price somewhere in the range of those listed in Table 1, which I referred to previously. In practice, these figures considerably overstate the Canal's marketable price because no way exists for an owner of the Canal to assess Canal users for all of the value of the transit to them. Other speakers here today will likely address this point, that as a going concern the Canal is valuable to the world, but it is very difficult to make that value tangible by raising toll prices, and that a residual benefit or consumer's surplus inevitably remains asociated with cargo movements.

Much of the value of the Canal which accrues to the cargo and therefore to users, will continue to accrue, so long as the Canal is open and rates attractive to commerce are charged. And if they are not, the owner will be hurting himself by turning away business, and the loss to the world will not exceed the estimates given in Table 1.

What level should the sale price be? There is probably no completely justifiable way to estimate a sale price, but a not unreasonable guess—and I emphasize guess, because I don't feel I am really a knowledgeable expert on toll matters, there are other gentlemen at this table who are . . . but a not unreasonable guess would be that a price of $2 billion to $4 billion would be fair to both buyer and seller. This is my guess of what the owner of the Canal could extract from users through increased tolls, which would exceed Canal operating and maintenance costs, expressed as a net present value.

The user's increased toll payments would cause an increase in prices of consumer goods in the countries which trade through the Canal. Table 2 shows the proportion of the additional burden which might be borne by various regions. The figure for Central America does not apply in this case, however, since the Republic of Panama, the presumed buyer, would gain the difference between the actual sale price and the monopoly profits it derived as owner.

Economics is only part of the multidimensional effects of a change in control of the Canal so that actual cash payments would also depend on what else was part of the package, such as access to military bases, better relations, and so forth. One might think of access to a base for 20 years as being worth $2 billion to $4 billion so that ownership of the Canal and access to a base might be traded even up. I use this merely as an illustration to make my point clear.

It is hazardous for me as a specialist to judge the significance of the Canal's economic value. Nevertheless, I will venture the judgment that the Canal's economic value is not great relative to the other dimensions of U.S. interest which would be affected by a change in control of the Canal. If the U.S. has a vital interest in the Panama Canal, it is probably not economic.

Mr. Chairman, I would like to change course at this point, and move away from economics to a question of national security. This

is something that I realize is not supposed to be treated in this meeting, but I felt it would be worthwhile for me to bring it up because my orientation as an economist might be helpful in addressing the question of national security.

I would like to bring to your attention some calculations I have undertaken of the response time of naval ships to emergencies in the oceans. The purpose of the calculations is to see if the time it takes to move naval forces to the scene of an emergency is likely to be affected by access to a Central American canal and to see if explicit calculations of the response time is apt to be a useful method for exploring the contribution of the Panama Canal to United States national security.

My reason for calling this work to your attention is not because it proves anything about the Panama Canal. Rather, it indicates that the debate about the Canal's national security value can be conducted on a basis of valuable information if an effort is made to develop it. Thus far, an effort to develop useful information has not occurred, or at least has not been made public. The calculations are contained in Table 3.

This table shows the sailing time in days of task forces located in the Atlantic and Pacific Oceans to areas of possible emergency. The table shows that for emergencies in the Atlantic, such as near the Cape of Good Hope, a task force coming from the Pacific via a canal would take 19.6 days to arrive on the scene, whereas a task force starting from the North Atlantic could arrive in only 12 days, or almost 8 days sooner than one coming from the Pacific. The table further shows that if the Pacific task force was denied use of a Central American canal, it could still come around Cape Horn, losing two days. Thus a canal does not appear, in this simple scenario, to be an important factor in expediting the movement of naval forces in an emergency.

For emergencies in the Pacific, access to a canal would be more useful in that a forced movement from the Atlantic around Cape Horn to Callao, Peru, would cost the difference between 17.9 and 5 days, or almost 13 days. But then a task force from the Third Fleet in the North Pacific might arrive in 7.5 days or only 2.5 days later than a task force coming through a canal.

This analysis is intended to be illustrative and ignores many important factors. However, the 2-day saving, for the scenario of an emergency in the Southeastern Pacific is a number like the Panama Canal economic value. It may be thought of as a rudimentary indicator or metric of the contribution of a canal to the security dimension and weighed against accomplishments in the economic dimension, for example. Systematic comparisons of this nature for several alternatives have come to be called a multiobjective analysis.

I would like to summarize my statement now for you, if I may. The lump sum economic value of the Panama Canal to the world is in the range of $6.5 to $8.9 billion. Were the Canal service denied to users, the U.S. loss would be about $2 billion. Were the U.S. to contemplate selling the Canal to a profit maximizing operator, it should initially consider a sale price in the range of $2 to $4 billion or attempt to obtain this value in other services in exchange. The

Panama Canal does not appear to me to be of vital interest economically to the United States.

An examination of U.S. task force locations and their relation to areas of possible future emergencies reveals that the advantage in sailing time a Central American canal offers is relatively limited. This calculation says less perhaps about the strategic value of the Panama Canal than it says about the possibilities for explicit, cogent analysis of the contribution of the Canal to our national security.

If possible, I would like to have inserted in the record at this point this statement and the fourth chapter of my doctoral dissertation, which contains a detailed description of my economic analysis of the Panama Canal.

Mr. METCALFE. Unless there is objection, it will be entered in the record, and may I also express the thought that your entire statement will be entered into the record unless there is objection. Hearing no objection, the entire statement of yours will be entered into the record.

[The statement and attachment follow:]

Dr. Stephen R. Gibbs

THE ECONOMIC VALUE OF THE PANAMA CANAL

While a graduate student at the Massachusetts Institute of Technology, I analyzed the economic value of the present Panama Canal to the world and to various countries and regions of the world including the United States. In addition, the economics of several proposed improvement projects for the Canal, and what effect these would have on the economic welfare of the world and the United States, were studied. Lastly, some of the arguments which have been raised regarding the strategic significance of the waterway were explored. This study constituted my Ph. D. dissertation. It may be found at M.I.T. under the title Multiobjective Analysis of the Panama Canal: The Value of a Marine Transportation System, 1976.

The following statement is a digest of the insights of my research which are likely to be most useful for this Committee's purposes. No attempt will be made here to develop in detail the theoretical basis of my research. An article describing my investigations, of the same title as this statement, is forthcoming in the highly regarded journal Water Resources Research. It describes the theoretical basis of my work and its appearance therein reinforces, in my opinion, the assertion of my doctoral committee at M.I.T. and myself that my methods are reasonable and consistent with the current state of the art.

The estimates which follow in this statement should not be interpreted as exact determinations of the Canal's economic value. A myriad of details enter into such a calculation, many of which can be known only imperfectly. Of necessity, a host of assumptions and approximations must be made, most of which will not be described here. However, exact figures are unlikely be be essential for this Committee's purposes. All that is essential is that the estimates be sufficiently close to the true values, that were the latter known, they would indicate an overall judgement on the Canal issue no different than

that indicated by the estimated figures. I believe I have achieved this essential level of accuracy.

How Benefits and Costs Existing in Different Time Periods are Equated to the Present

In order to understand what follows, it is necessary that an important economic principle be described relating to the treatment of time in the analysis. Economic analysis is fundamentally forward looking. It attempts to ascertain the effect of todays decisions on near and far term economic welfare and then to restate the effects as simple dollar values expressed as a lump sum. The technical term for this sum is a net present value. A reasonable person or entity should, in principle, be indifferent between being offered the near and far term economic benefits actually at hand and the lump sum which is the restated form for these benefits. Another way of putting this in the Canal context is that, in principle, the net present value of the Canal represents its fair market value or its selling price where the owner is indifferent between holding the Canal, or selling it for a lump sum. Casting an estimate in terms of a sale price is a convenient device and I will return to this technique below.

The forward looking philosophy leaves little room for consideration of the quantity of investments already made in the Canal or the benefits already reaped from its ownership, except insofar as knowledge of these may assist in post-mortems on previous decisions. For purposes of studying decisions which will affect the present and future, these historical events should be considered largely irrelevant from an economic viewpoint.

Previous investments do influence today's evaluations. Their influence works indirectly by increasing or decreasing near and far term net benefits derivable from continued control and operation of the Canal. These benefits appear as increases, or decreases, in the size of the net present value of the Canal. If a prior investment was worthwhile, it will bring about an increase

in the size of the estimated net present value of the Canal. If it was not worthwhile, it will have no effect, or possibly a negative effect, on forecast future benefits and thus on the size of the estimated net present value.

Ironically, economic thinking also results in a reduction of importance, in today's terms, of benefits and costs occurring in the distant future. For most rational people an inheritance received today provides greater economic welfare than does the knowledge that it will be received later. Likewise for the United States, a given change in the nature of the Panama Canal operation has a more important effect on economic welfare if it happens in the near term than in the long. Economists and businessmen deal with this declining interest in future costs and benefits by applying lighter weights to the far term than the near term effects of a decision when estimating the net present value.

Net Present Value of the Panama Canal

The basic measure of benefit for my analysis is the willingness of users to pay for Canal transit services.

The net present value of the Panama Canal to the world, as I have estimated it, lies in the range of $5.4 to $6.9 billion as of 1975. These figures in 1977 terms would be roughly 20 percent higher due to the effects of inflation on the value of the dollar. See Table 1. This range of figures represents my estimates of the loss in economic welfare which the world would suffer were the Panama Canal to suddenly and permanently close. It also represents, in principle, the price which the owner of the Canal should set were it to be sold to a buyer whose pricing policy was known to be monoploy profit maximization.

The fraction of the world value which the United States would lose in the event of a Canal closure is roughly 27 percent, or from $1.8 to $2.4 billion net present value in 1977 dollars. Actually these latter figures are too large because some important effects, which would follow a closure, which I have not

estimated in any detail, would offset the loss of the United States and other world regions, and increase the Republic of Panama's loss. It is sufficient for my purpose to note that the figures given are estimates of the upper limit of U.S. loss.

TABLE 1

Net Present Value of the Panama Canal to the World

Social rate of discount	8%	10%	12%
Panama Canal value	$8.9	7.2	6.5

Billions of 1977 dollars

Other regions of the world which would suffer losses of economic welfare if the Panama Canal were to close are Japan (17.5 percent of the total), South America (16.5 percent), Central America (5.2 percent) and Asia, excluding Japan (10.6 percent) among others. See Table 2. The actual loss to Panama would be much larger than the percentage listed suggests due to the same effects mentioned above which tend to reduce the United States loss. Very likely, the Republic of Panama would be the largest loser in absolute terms if the Canal closed and the effect on its economy would probably be devastating.

TABLE 2

Percentage Share of Panama Canal Benefits by World Region

Region	Percent Share
United States	27.0
Japan	17.5
Western Europe	7.1
Canada	7.0
Central America	5.2
Oceania	3.9
South America	16.5
Asia (excluding Japan)	10.6
West Indies	4.4
Middle East	.1
Africa	.7
Total	100.0

The figures in Table 1 are net present values and equivalent to a time stream of costs and benefits. Were the Canal to close, the loss to the

world in the first year would be on the order of 2 billion dollars and the United States' loss would probably not exceed roughly $500 million that year. As time passed, the additional losses would occur. Appropriately weighted, they sum to the figures of world loss given above. These figures for both first year and net present value losses are infinitesimal when compared to the United States Gross National Product.

At various times it has been stated that approximately 70 percent of the trade passing through the Canal originates in or is destined for the United States. This figure of 70 percent does not agree with my estimates of the percentage of Canal value accruing to the United States because the former figure is a measure of the importance of United States trade to the Canal enterprise while my figure is the reverse of this, the value of the Canal to the United States. This latter measure seems to me to be the relevant one from a national perspective.

The Effect of a New Treaty and Possible Sale Price

Thus far, the likely consequences for economic welfare if the Panama Canal were to be suddenly and permanently closed have been described. However, this scenario is perhaps less likely than one of a change in ownership and administration of the Canal brought about by a new treaty agreement. In this case, the change in economic welfare will be smaller in all respects than if the Canal were shut, although it makes some difference who the new owner is and what pricing policy is adopted. To explain this scenario it is useful to return to the discussion of possible sale prices.

In principle, the Republic of Panama or any other buyer, should be willing to buy the Canal for a price somewhere in the range of those listed in Table 1. The more concerned the buyer or seller is with benefits and costs occurring in the present and near future, as opposed to those occurring in the far future, the higher the social rate of discount should be in calculating the net present value and the lower the sale price.

In practice, these figures considerably overstate the Canal's marketable price because no way exists for an owner to

assess Canal users for all of the latter's willingness to pay for transit. Other speakers here today will likely address this point - that as a going concern the Canal is valuable to the world but it is very difficult to make that value tangible by raising toll prices. The problem is that each unit of cargo derives benefit from the transit up to some maximum price, but for each unit, its a different maximum. Since there are a vast number of cargo units transiting the Canal, Canal authorities, whomever they may be, must use simple rules of thumb when setting tolls that have broad applicability. When reduced to simple systems, however, it become impossible to extract all the value of the transit from the cargoes passing through the Canal. A residual benefit or consumer's surplus remains associated with the cargo movement. Another way to say this is that as far as users are concerned it probably doesn't make much difference who owns the Canal, so long as the owners are rational economic actors. Much of the value of the Canal which accrues to the United States and the world in general will continue to accrue, so long as the Canal is open and rates attractive to commerce are charged. And if they are not, the owner will be hurting himself by turning away business and the loss to the world will not exceed the estimates given above for the case of a Canal closure.

What level should the sale price be? A number of difficulties arise here involving strategy and bluffing in setting toll prices which will affect the amount of value the owner can extract from the operation and thus the size of the sale price. There is probably no theoretically justifiable way to estimate a sale price, but a not unreasonable guess would be that a price of $2 to $4 billion would be fair to both buyer and seller. This is my guess of what the owner of the Canal could extract from users through increased tolls, which would exceed Canal operating and maintaince costs, expressed as a net present value. Canal users would lose this same amount, over and above what they would pay under a continuation of the present Canal toll policy of breaking even. The users' losses would

ultimately cause an increase in prices of consumer goods in the countries which trade through the Canal. Table 2 shows the proportion of the total loss which might be born by various regions. The figure for Central America does not apply in this case however, since Panama, the presumed buyer, would gain. The actual incidence of the loss would depend on the toll policy and toll system and cannot be foretold without more information.

A perceptive reviewer of my statement has observed that while the loss to the United States of a Canal closure is on the order of $2 billion net present value, the fair sale price to a buyer is different than this, a range of $2 to $4 billion having been suggested. However, in principle, the economic value of the Canal is closer to $7 billion. Why are all these numbers different and particularly why is the sale price different than the economic value of the Canal to the United States?

They differ because I have assumed that the U.S. government policy of charging tolls to recover only operating costs is immutable. Given this, the value of the Canal appears as a consumer's surplus and is reaped by its users. Those U.S. citizens who consume or produce goods shipped through the Canal gain the $1.8 to $2.4 billion value. If the Canal were sold to a profit maximizing operator, he would raise tolls and capture as much of the surplus as possible. Therefore, to him the Canal's worth is what can be gotten through higher tolls as opposed to the case of the U.S. where the worth appears as the consumer surplus accruing to Canal users. The U.S. sale policy is assumed for this discussion to be one of selling for just a shade less than what it is worth to the buyer. I have guessed this figure to be in the range of $2 to $4 billion net present value. Other experts in the field of Canal toll policies may suggest a different range.

Suppose the U.S. sold the Canal for $3.5 billion, or about one-half its economic value as estimated here. This sale price is assumed to be a fraction less than the excess in tolls that the new owner could extract. Then the U.S.

treasury would be $3.5 billion ahead and U.S. citizens who trade through the Canal might lose, through higher tolls charged by the new owner, about one-half of their surplus, or about $1 billion. On balance the U.S. comes out ahead by $2.5 billion. Japan, on the other hand would probably lose something on the order of .$63 billion. This represents one-half of the consumer surplus which would have otherwise accrued to Japan or is one-half of 17.5 percent of the global economic value of the Canal as shown in Table 1. If the losses from all other world regions were totaled up it would come to about $2.5 billion, the U.S. gain in this transaction.

Economics is only part of the multidimensional effects of a change in control and ownership of the Canal so that actual cash payments would also depend on what else was part of the package, such as access to military bases, better relations, etc. One might think of access to a base for 20 years as being worth 2 to 4 billion dollars net present value so that ownership of the Canal and access to a base might be traded even up.

The weight one accords these estimates of the economic value of the Panama Canal operation depends not so much on the absolute value of the estimates as on their relation to all the other consequences of the Panama Canal operation, especially consequences in the national security and foreign relations dimensions. For this reason it is hazardous for me as a specialist to judge the Canal's economic value. Nevertheless I will venture the judgement that the Canal's economic value is not great relative to the other dimensions of U.S. interest which would be effected by a change in control of the Canal. If the U.S. has a vital interest in the Panama Canal, it is probably not economic.

Analysis of Major New Projects

Several possible major improvements to the Panama Canal have been proposed over the years. These are directed to permit an increase in the size of the maximum size ship which can transit the Canal and to increase the capacity of the waterway in terms of total annual traffic. The proposals fall in two main categories: 1) Enlargements of the present lock canal by adding enlarged locks; and 2) Digging a sea level canal.

Any estimates of the economic consequences of these major investments are necessarily rough as neither the costs of the undertakings is well known nor can one forecast with confidence the demand for the facilities. I used the estimates for construction cost and demand levels contained in the 1970 Interoceanic Canal Study Commission report. Using their estimates and

what I believe to be reasonable assumptions about benefits, scheduling of the construction, and toll policies, it appears that building a third set of would cost about $200 million net present value in 1975 dollars. This assumes that the construction would not begin until 1995 or later. Starting work earlier results in larger net losses. It seems unlikely that such an undertaking would produce a positive net economic benefit if undertaken in the foreseeable future.

Analysis of a sea level canal investment presents essentially the same type of problems as for a third locks project. Nevertheless, the uncertanties are not so great as to preclude reaching the general conclusion that even the least costly conventionally constructed (not employing nuclear explosions) sea level canal, like the third locks project, would be a net economic loser for whomever undertook it. My analysis indicates that the loss, in 1975 dollars, for a sea level project undertaken in 1991, would be between $240 and $450 million net present value. These figures are mostly illustrative however and the loss could well be twice, or half this.

Economic Thinking as an aid in Elucidating the National Security Dimension

While a Central American Canal was seen in the 19th Century as primarily a commercial enterprise, the Spanish-American war shifted the thinking of this country's leaders to the improvement in naval mobility potentially provided by a canal. Their resolve to build and control a canal was founded primarily upon military needs. Today the effect on U.S. national security of the Panama Canal operation is still at the forefront, if not foremost, in the thinking of most citizens. Yet the contribution a canal makes in this dimension is rarely spelled out publicly. The Interoceanic Canal Study Commission study, for example, simply asserts that access to a sea level canal would economize defense efforts so that our navy would be better able to meet the continuing requirement to shift naval power between the oceans in the face of changing threats and situations. It further states that "A transisthmian

canal, either lock or sea level, is of major and continuing importance to the national defense of the United States." These statements provide a slim basis on which to judge a sea level canal's contribution to the defense needs of the United States. Thus, it is especially difficult to weigh that judgement against achievements in other dimensions such as foreign policy or economic welfare.

Yet the effects of the Canal operation on the U.S. national security dimension can be explored to a certain extent. As an illustration I submit the figures contained in Table 3. These show the sailing time of various task forces from regions where one might expect the task forces to be found, to regions where they might be needed on short notice. It is the improvement in response time of naval units which naval authorities cite as an important benefit stemming from guaranteed access to a strategic canal such as the Suez Canal or the Panama Canal.

For emergencies in the Atlantic Ocean, the naval forces already in the Atlantic are closer in time to the scene by about 7.5 days than are naval forces stationed in the Eastern Pacific Ocean which would employ a Central American canal. In this case a canal appears to provide no benefit.

For emergencies in the Pacific Ocean, only for a region

in the South Pacific near Western South America would a task force coming from the Second Fleet located in the Central Western Atlantic arrive sooner than a task force from the Third Fleet sailing directly from the Eastern North Pacific. The time advantage offered by a Central American canal, capable of accepting for transit the forces in movement is about 2 days.

This analysis is illustrative and ignores such important factors as needs for ships elsewhere in the oceans, risk of attack on the task force while in route, likelyhood that the canal would be open when needed, duration, magnitude,

and type of conflict, composition and capability of the task force and transit characteristics of the canal. The effect of variations in all these parameters can and should be investigated and the results made available to this committee. An economicsts calls such an investigation a sensitivity analysis. This committee should seek such explorations from its witnesses.

TABLE 3

Response Time of U.S. Task Forces

A. Assume that ships from either the Third Fleet or the Second Fleet are to be moved at an average task force speed of 20 knots to an incident in the South Atlantic. The Third Fleet ships are assumed to be in the vicinity of San Diego when setting out and the ships from the Second Fleet are assumed to be in the vicinity of Puerto Rico when setting out.

Incident Location:	Montevideo	Rio de Janero	Cape of Good Hope
Third Fleet Ships via			
Canal in Panama	17.1	15.0	19.6
Cape Horn*	14.8	16.7	21.0
Second Fleet direct	9.8	7.6	12.0

B. Assume that ships from either the Second Fleet or the Third Fleet are to be moved, at an average task force speed of 20 knots, to an incident in western South America. The starting points of the task forces' are assumed to be the same as for scenario A above.

Incident Location:	Guayaquil	Callao	Valparaiso
Canal in Panama	3.9	5.0	7.6
Cape Horn*	19.2	17.9	15.3
Third Fleet direct	6.5	7.5	9.9

* No allowance is made for possible delays due to foul weather.

The two day saving, for the scenario of an emergency in the Southeastern Pacific is a number like the Panama Canal economic value. It may be thought of as a rudimentary indicator or metric of the contribution of the canal to the security dimension and weighed against accomplishments in the economic dimension, for example. Systematic comparisions of this nature for several alternatives constitute what economists have come to call a multiobjective analysis.

While sensitivity analysis and multiobjective studies can not reduce our fundamental ignorance of present relationships and future events, if properly done, I believe them to be as useful or more useful than other commonly used methods of analysis.

Conclusion

Based on willingness to pay as a measure of benefit, the lump sum economic value of the Panama Canal to the world is in the range of $6.5 to $8.9 billion. The U.S. share of this value is roughly 27 percent or about $2 billion. Were the U.S. to contemplate selling the Canal to a profit maximizing operator, it should initially consider a sale price in the range of $2 to $4 billion net present value or attempt to obtain this value in other services in exchange for control of the Canal.

No major improvement projects that have thus far been proposed appear to be justiable from a purely economic perspective. An elementary examination of present U.S. task force locations and their relation to areas of possible future emergencies reveals that the advantage in sailing time a Central American canal offers is relatively limited. This calculation says less perhaps about the strategic value of the Panama Canal than it does of the need for improved informatic and analysis of the contribution of the Panama Canal to national security. The illustration provided indicates how one might develop such an analysis.

This concludes my statement. Thank you for accepting it for inclusion in the record and for inviting me to appear before you.

Dr. GIBBS. Thank you very much, Mr. Chairman. This concludes my statement.

Mr. METCALFE. Thank you very much, Dr. Gibbs.

Next we will hear from Dr. Margaret Daly Hayes, of Policy Sciences Division of CACI, of Arlington, Virginia. Dr. Hayes?

STATEMENT OF DR. MARGARET DALY HAYES

Dr. HAYES. Thank you, Mr. Chairman. Mr. Chairman, members of the committee, I am Margaret Daly Hayes. I hold a doctorate in political science with special interest in Latin America and presently work for a consulting firm, CACI, Inc., in Arlington, Virginia, in the Policy Sciences Division. I would like to thank the Chairman of the Panama Canal Subcommittee for the opportunity to address these hearings. It is both a pleasure and an honor to do so.

For the past year and one-half I have been closely involved in studying political, economic, and military implications of different scenarios involving the future of the Panama Canal. This work has been performed under contract to the Office of the Assistant Secretary for International Security Affairs, Department of Defense. I have recently completed a study to forecast future traffic flows through the Panama Canal to the year 2000. This study was jointly undertaken by myself and my colleague, Mr. Salam Hleihel, who is present with me in the room today.

The perspective we have adopted in evaluating future prospects for the Panama Canal is comparative, not absolute. We assume the Canal will be open to world trade in the future, for it is a worthless facility if it is closed. We are therefore interested in those factors that will affect Canal use, not in assessing its current real estate value. Estimates of future Canal traffic are based on the standard assumption that international commerce will flow through the Canal as long as it represents the cheapest, most rapid, and most efficient route for trade between partners. The economic value of the Canal is represented by the savings that accrue because the Canal is available, that is, the difference in cost between a Canal route and the next best alternative route.

As a result of this research, I conclude that, while the Canal is, has been, and will be an important facility for the U.S., it in no way is or will be economically vital to this country. In contrast, I believe the Canal and Canal Zone are currently politically important. Our political interests can best be served by a renegotiated treaty that provides for U.S. cooperation in effecting a gradual transfer of future responsibility for the Canal to Panama, thus assuring the Canal's continued availability for efficient service to international trade. My conclusion is based on the following points:

One, while U.S. trade is very important to the Panama Canal, the Canal is less important to U.S. trade. Almost 70 percent of Canal traffic is U.S. related—either imported to or exported from the U.S. Approximately 25 percent of U.S. exports by volume and 7.5 percent of U.S. imports by volume pass through the Canal. The value of this trade has been about one percent of U.S. GNP.

Two, Panama Canal traffic volume is strongly determined by a few high-volume bulk commodities. Growth of traffic in several of these is likely to decline sharply in the future. General cargo traffic will grow substantially, paralleling world economic growth, but will not replace the tonnage volume lost in bulk commodities over the next two decades and beyond.

Three, the major bulk commodities transiting the Canal at present are petroleum and petroleum products, grains, and coal. These have accounted for over 50 percent of total Canal tonnage over the past two decades. There has already been a noticeable drop in coal traffic through the Canal as the coal trade shifts to carriers too large to pass through the Canal. Alaskan oil production will soon supply West Coast U.S. needs, eliminating the need for shipments from the East. Latin American intercoastal petroleum traffic will decline as domestic refinery capacity and domestic consumption increase in Ecuador and Peru. U.S. petroleum imports from Latin America have been declining steadily as a percentage of total petroleum imports. Latest figures indicate that over 60 percent of U.S. petroleum imports come from outside the hemisphere. Currently, most U.S. imports from Latin America do not pass through the Canal. In the future, Mexico is likely to become a major supplier to the U.S. in petroleum. Of the major commodities currently transiting the Canal, only grains shipped from U.S. Gulf ports to Pacific Ocean destinations are expected to continue to increase in volume.

Four, future Canal traffic will likely grow at substantially slower rates than in the past. CACI estimates for future traffic volume,

based on analysis of 21 major commodities traded on 40 major trade routes and 25 high-volume general cargo routes, indicate a modest (less than two percent per year) average annual growth rate for total Canal traffic to the end of the century. The major factors influencing this slower growth rate are changes in patterns of international commerce that are dictated by availability of new sources of supply, rising costs of shipping, and rapid development of trade with the developing world and with the developed world.

Five, with the exception of petroleum, no raw materials imports critical to the U.S. now transit the Canal in significant volume. However, the pattern of petroleum distribution will change radically in the near future when Alaskan oil becomes available. Best estimates by a variety of experts indicate that surplus Alaskan crude should be transshipped through the Canal only in the short run. In the long run, pipelines should be more economical and more secure thna Canal transshipment.

Six, by contrast, Japan presently relies upon the U.S. for 30-40 percent of its coal imports and 60 percent of grain imports. Most of these have been shipped through the Canal in the past. While alternative sources of coal are available and substantial coal tonnage now bypasses the Canal enroute to Japan, the U.S. is expected to remain the main supplier of grains for the foreseeable future. The bulk of U.S. exports to the Pacific will continue to prefer the Canal route. In addition, a high volume of Japanese manufactured exports to the U.S. pass through the Canal. Because the Japanese economy is heavily dependent on these imports and exports, the Canal is potentially more important to Japan than to the U.S. Even so, Japan could be supplied over alternate routes at modest difference in cost.

Seven, next to the U.S., the Latin American countries are the main users of the Canal. In 1976, 24 percent of Canal traffic originated in Latin America. Several of the countries in Central America, including Nicaragua, El Salvador, Panama, and Colombia, depend heavily on the Canal for shipping major export commodities such as bananas and coffee. The Canal is much more important to these countries than it is to the United States because of their less diversified economic structures. It is in their interest that the Canal remain an open and efficient facility.

Eight, alternative routes and sources of supply are available for nearly all commodities presently transiting the Panama Canal. Many are currently only marginally more costly than the Canal route. Some are becoming more competitive as they attract greater volumes of trade and employ larger, faster vessels, or as the cost of Canal use (tolls) increases. The rapid development of Third World international trade is opening new sources of raw materials supplies and new markets for manufactures exports. Most of this new trade will not pass through the Panama Canal.

Nine, the Panama Canal currently transits about four percent of world seaborne trade. It is an important facility on some trade routes because it provides savings in shipping time and costs. In the unlikely event that the Canal were not available, approximately 40 percent of current traffic would be diverted to alternative sources of supply. The increased costs of rerouting the remaining 60 percent of

trade are estimated at $1 billion in the year 2000. This is less than one-tenth of one percent of the total value of world trade in 1975, and therefore insignificant. The value to the U.S. is estimated to range between $200 million and $500 million (1975 constant prices) in the period to the end of the century. World trade is expected to double by the year 2000 at conservative estimates. This is a negligible portion of our $1.5 trillion GNP.

Ten, the Panama Canal will continue to be an important facility in international trade through this century and beyond. Total traffic volume as currently forecast will not tax Canal capacity. The economic viability of the Panama Canal will depend on its availability to international commerce. Revenues from the Canal and Canal Zone currently account for 13 percent of Panama's GNP. This represents a much smaller share of Panama's GNP than in the past as Panama's economy has developed and diversified. Panamanian plans for future development are based on expanded provision of service to international commerce drawn by the Panama Canal. Panama rightfully considers the Canal, even under U.S. ownership, its most important economic resource. It is therefore highly unlikely that Panama would purposely engage in actions to threaten traffic flow through the waterway.

Eleven, the Panama Canal can hardly be considered vital to the United States. It is neither essential nor indispensable to the movement of U.S. commerce. Were it not available, adjustments would occur as they did when the Suez Canal was closed. However, insofar as the Panama Canal provides economic benefits to world commerce, our interests and those of our allies lie in maintaining it as an open and efficient path between the Atlantic and Pacific Oceans. How best to do this depends on political, not economic, considerations.

The United States cannot operate the Canal without the cooperation of Panama. Nearly three-quarters of the Canal and Canal Zone Government labor force are Panamanian citizens. The costs and benefits to be incurred by the United States under a proposed new treaty should be weighed against the costs and benefits that might occur should the United States have to support the Canal and Zone operations without Panamanian participation aid. As Ely Brandes, an economist associated with the Panama Canal Company's own studies of future Canal traffic, has stated, "The Canal is simply not worth a king's ransom any more." Our analyses concur with this conclusion.

In light of these economic facts, forecasts, and analyses, we conclude that it is in the political, military, and economic interest of the United States to maintain a friendly and cooperative relationship with Panama. Only in this way can we assure the efficiency and effectiveness of Canal operations. It is also in the political interests of the United States to demonstrate its willingness to respond positively to the interests of developing countries in Latin America and the third world in general. It is in this political arena that we have much to gain and most to lose over the next 20 to 25 years.

Mr. Chairman, that completes my statement. I have submitted additional supporting material for the record and I will be glad to

answer any questions or provide additional information as requested.

Mr. METCALFE. Thank you, Dr. Hayes.

Unless there are objections, the entire statement will be entered into the record. Hearing no objection, the entire statement with all the statistical information will be entered into the record.

Thank you very much.

[Document referred to follows:]

PANAMA CANAL TRAFFIC: PROSPECTS FOR THE FUTURE

Forecasting future Canal traffic for an extended period of time is a risky endeavor. Most startling developments in the world economy during recent years were not foreseen in even the best and most rigorous projections. Discussion of U.S. interests in the Panama Canal to the year 2000 and beyond must be based on analysis of the best information currently available and on careful examination of important future trends in global economic behavior.

Panama Canal traffic presently represents approximately 3.5-4.0 percent of world seaborne trade (Panama Canal Company and UNCTAD, 1975). The most recent available estimates by CACI and others indicate that future Canal traffic will grow at substantially slower rates than in the past. The developing world trades primarily with the developed world, Europe, Japan, and the United States, on trade routes that do not involve the Canal. A number of major trades have recently begun employing vessels too large to pass through the Canal. Higher prices for raw materials have stimulated development of new supply sources in areas that will not require the Canal to reach markets. The reopening of the Suez Canal has already caused a drop in Panama traffic on the Europe-Japan route.

Assuming that these trends continue to develop, CACI has forecast that Panama traffic volume will likely grow at rates averaging between 1 and 2 percent/year between 1976 and 2000. This compares to an average annual growth of 7.8 percent between 1965 and 1974. Figure 1 presents forecasts of Canal traffic as developed by CACI and other researchers.[1] The long-term forecasts are, of course, risky and therefore subject to revision over time as new information becomes available.

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[1] The purpose, methodology, and assumptions of these forecast efforts differed. They represent each research team's best estimate of future traffic, but are comparable only in a gross sense.

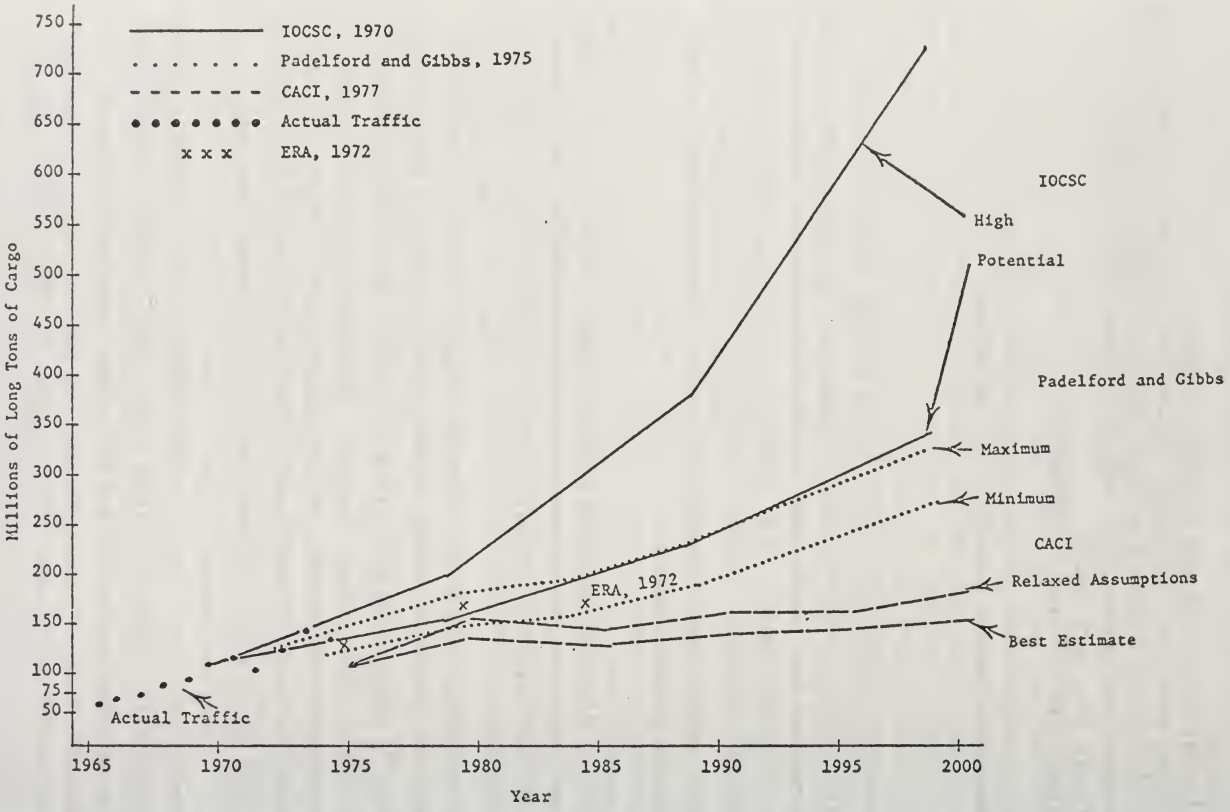

Figure 1. Comparison of Forecasts of Panama Canal Traffic, 1970–2000

The CACI forecasts were based on evaluations of future supply and demand for major commodities, the impact of changes in shipping (particularly vessel size and new technology), the impact of rising shipping costs (particularly fuel costs), the availability of alternative modes of transport, the impact of reopening the Suez Canal, and the increasingly important role of Third World countries as suppliers of raw and semi-processed goods and consumers of finished products. Twenty-one specific commodities traded on 40 major trade routes and 25 high-volume general cargo routes were analyzed in detail to generate the forecasts. Several factors contribute to the low rate of growth forecasted for Panama Canal traffic:

- Major declines in crude petroleum and petroleum products traffic (Alaskan crude is not included in the projections).
- Declines in coal and several other bulk commodity traffic.
- Diversion of some general cargo traffic to alternative routes.

PROSPECTS FOR MAJOR COMMODITIES TRANSITING THE PANAMA CANAL

Panama Canal traffic volume is strongly determined by a small number of high-volume commodities. A small change in the trade pattern in any one of these commodities can have a large impact on Canal traffic volume and revenue. CACI's projections for diminished Canal traffic growth over the next two decades are based on the assessment that substantial change will occur in the trade patterns of several of the most important commodities currently transiting the Canal. The major commodities transiting the Canal in recent years have been petroleum, grain, coal and coke, iron and steel manufactures, ores and phosphates, and fertilizer. Table 1 gives the percentage of total traffic for 1965, 1970, and 1976.

In the past 5 to 6 years petroleum and products, grains, and coal and coke have accounted for nearly 50 percent of total Canal traffic.

TABLE 1

Major Commodities Transiting the Panama Canal
(percent of total tonnage)

	1965	1970	1976
Petroleum and Products	19.8	15.5	18.7
Grains	8.8	10.9	16.3
Coal and Coke	8.7	18.7	14.3
Manufactures of Iron and Steel	5.0	7.1	7.6
Ores and Metals	13.4	12.9	7.3
Fertilizer Raw Materials	5.5	6.8	5.3

Source: Panama Canal Company Annual Report.

Looking to the future, however, one sees a potential sharp decline in the volume of Canal traffic in coal and petroleum as well as a decline in ore and metals traffic.

Petroleum and Products

Petroleum and petroleum products traffic moves primarily between East Coast Latin America and West Coast Latin America (Venezuela and West Indies to West Coast Latin America and Ecuador and West Indies), East Coast Latin America and West Coast U.S., and West Coast Latin America and East Coast U.S. This historical traffic pattern should change substantially in the near future. Several factors will influence this change:

1. The availability of refinery capacity in Ecuador to process light Oriente crude petroleum will substantially reduce Ecuadorean crude exports to West Indies refineries.

2. The availability of Alaskan crude in the West Coast U.S. will nearly eliminate the need for Venezuelan and West Indies crude and refined exports to the West Coast U.S.

A projected decline of petroleum and products traffic from 18 percent in 1976 to 4 percent in 2000 is based on these two observations.

Surplus Alaskan crude will likely transit the Canal in the short run (next 5-8 years) under current plans to transship the surplus at Panama to U.S. Gulf ports. At peak Alaskan production, transshipping Alaskan crude could result in an additional 50 million tons of traffic through the Canal. Over the long term, however, transshipment is more costly than alternative means of disposal such as exchange with Japan or pipeline construction. Table 2 presents data on proposed alternatives and costs for distributing the Alaskan crude surplus. It is likely that one or more of these alternatives will be adopted in the future, thus eliminating a good portion of prospective Canal traffic. Moreover, Panama and several other Latin American countries have proposals for pipeline construction to transfer Alaskan crude imports. Once these are developed, the Canal would be a least preferred route.

Coal and Coke

Almost all coal shipped through the Canal moves from East Coast U.S. ports to Japan for use by the Japanese steel industry. Due to a decline in Japanese steel production as well as increased use of bulk carriers too large to transit the Canal, 1976 represented a year of unusually low Japanese coal imports through the Canal. The employment of large vessels bypassing the Canal is increasing. The superships carried 17 percent of U.S. coal exports to Japan in 1975, up from 8 percent the year before. This diversion of coal traffic from the Canal can be expected to continue, and the enlargement of Hampton Roads, Virginia, port in the 1980's to handle ships of 200,000 deadweight tons will further undercut shipments through the Canal. In addition, Japan is presently seeking to diversify sources of raw materials imports and will purchase increasing amounts of coal from Canada and Australia, none of which will move through the Canal.

TABLE 2

Proposed Transportation and Marketing Projects for Alaskan Crude Surplus

Pipeline/ Route	1985 Alaskan Crude Capacity	1985 Transport Costs and $/bbl. (Valdez to final destination specified)	Earliest Start Date (month/year)
Pipelines			
Canada	384	2.39 (Chicago)	7/1980
Northern Tier U.S.	484	2.85 (Chicago)	1/1981
Guatemala	1200	2.76 (Houston)	1/1981
North Central U.S. (Seattle-Wyoming)	500	4.04 (Chicago)	1/1981
Central U.S. (California-Wyoming)	500	3.91 (Chicago)	1/1981
Canadian Trans-Mountain	165	2.56 (Chicago)	1/1979
Sohio (Southwest U.S.) Phase I Conversion 500	500	2.24 (Houston)	1/1979
Phase I (new line or partial conversion)	500	2.51 to 3.02 (Houston)	1/1980
Phase II	1000		1/1984
Ocean Shipments			
Panama Direct	--	4.54 (Houston)	--
Panama Transshipment	--	3.03 (Houston)	--
Cape Horn	--	4.29 (Houston)	--
Rail (U.S.)	--	4.59 (Houston)	--
Exchange			
Valdez to Japan	--	0.64 (U.S. Flag)	--
(1/1977 Costs)	--	0.45 (Foreign Flag)	--

Sources: A.D. Little, Inc. (1977), FEA (1977), Temple, Barker and Sloane, Inc. (1977).

Grains

As in the case of coal, most U.S. grain (corn, barley, soybeans, and wheat) shipments through the Canal are destined for Japan, though exports to the People's Republic of China have increased sharply in recent years. U.S. exports to the Asian subcontinent, sometimes high, will be shipped via the shorter Suez Canal route in the future. Shipments to the Soviet Union go primarily to European and Baltic Sea ports. West Coast Latin America, particularly Chile, is the other large-volume trade passing through the Canal. Thus, Asian and Latin American demand for U.S. grain exports will be the major determinants of Canal traffic in these commodities.

The United States is expected to continue to be a major grain exporter, and exports will increase particularly in feed grains. Canal traffic is expected to remain fairly stable however, due to increasing competition from other suppliers -- Canada and Australia for wheat, Brazil for soybeans. In addition, many wheat exports move through West Coast ports. Feed grains, shipped out of Gulf ports, are therefore likely to constitute the bulk of Canal grain traffic in the future. Unlike the commodities discussed above, grains tend to move in smaller ships that will be able to pass through the Canal in the foreseeable future.

Ores and Metals

The volume of ore and metals shipments through the Canal has been declining in recent years, and this trend is expected to continue. The bulk of trade has traditionally been in iron ore shipped from West Coast South America to East Coast U.S. and Europe. U.S. imports of West Coast South American iron ore have declined as a result of nationalization of property there and a shift to nearer sources in Canada and Venezuela. West Coast South American exports to Europe constitute a very small percentage (from 4 percent in 1965 to 1.5 percent in 1974) of total European

imports, though they have been important in Canal traffic in the past. Volume on the South America-to-Europe route has declined in recent years, however, as a result of increased South American shipments to Japan and a dramatic shift to use of large (greater than 100,000 DWT) carriers in the ore trades.

Copper and zinc exports by West Coast South America constitute another high-volume Canal trade. These are destined primarily for Europe and are expected to continue to pass through the Canal. They will nevertheless comprise a very modest percent of total Canal traffic.

Manufactures of Iron and Steel

Traffic in iron and steel manufactures has traditionally moved through the Canal from Japan to East Coast U.S. and Europe. The European trade emerged after the closing of the Suez Canal and can be expected to slacken with the opening of that waterway. U.S. imports of Japanese manufactures of iron and steel are expected to increase but less rapidly than in the past, as devaluation of the dollar has placed domestic production in a better competitive position. The Canal will continue to be important in this trade and other growing trade with Japan. Alternative routings, via West Coast ports and landbridge, would be viable however.

Fertilizer Raw Materials

Phosphate rock, fishmeal, and sulphur are primarily processed as fertilizers, and increasing trade is expected as world food demand increases. Rock phosphate exports now comprise 3-4 percent of Canal traffic and are shipped from East Coast U.S. to Canada and Asia. U.S. exports are expected to decline in the late 1980's as major supply areas near depletion (U.S. Bureau of Mines, 1976; H.P. Drewry, 1974). In addition, Australia and North Africa will be major export suppliers in the next

decade and beyond and will make inroads in former U.S. markets. Exports between the United States, Asia, and Canada will continue to use the Canal. Fishmeal exports from West Coast South America to Europe are expected to increase in the future and will continue to use the Canal. It will remain a modest (about 1 percent) component of Canal traffic however.

VALUE OF THE PANAMA CANAL TO THE U.S. ECONOMY

The value of U.S. foreign trade (exports plus imports) as a percent of GNP has been steadily increasing over the recent past. In 1975 foreign trade accounted for 16 percent of GNP, up from 10 percent in 1969 and 12 percent in 1972 (International Monetary Fund, 1976). In 1975 the U.S. foreign trade volume carried by ocean vessels was 632.8 million long tons (Bureau of the Census, 1976). At the same time approximately 90 million long tons of U.S. trade were shipped through the Panama Canal (Panama Canal Company, 1976). Thus, U.S. trade through the Canal represented approximately 25 percent of U.S. exports and 7 percent of U.S. imports by volume in 1974-1975 (Table 3).

Overall 65 to 70 percent of total Canal traffic volume either originates or terminates in the United States. Table 4 gives CACI forecasts of past and projected U.S. shares of Canal traffic. These forecasts estimate that U.S. trade volume through the Canal will remain stable at present levels (90-100 million long tons/year) because changes in trade patterns or means of transportation will divert trade away from the Canal. Thus, as U.S. international trade grows, U.S. trade through the Canal will decline as a portion of total U.S. trade. The Canal will therefore be less important to the United States in the future than it is at present. U.S. trade with Japan is by far the most important route using the Canal, accounting for 25 to 30 percent of traffic in recent years. U.S. inter-coastal trade, in contrast, accounts for only 3-4 percent of total Canal traffic.

TABLE 3

U.S. Trade Through the Panama Canal
as a Percentage of Total U.S. Seaborne Trade
(million long tons)

	1968	1975
U.S. Exports Through Canal (less intercoastal)	36.1	58.8
Total U.S. Seaborne Exports (average over 1974, 1975)	170.5	237.9
Percent U.S. Exports Through Canal	21.1%	24.7%
U.S. Imports Through Canal (less intercoastal)	21.7	27.9
Total U.S. Seaborne Imports (average over 1974, 1975)	240.8	390.6
Percent U.S. Imports Through Canal	9.0%	7.1%

Sources: Panama Canal Company, Annual Report; Bureau of the Census (various years).

TABLE 4

Panama Canal Traffic and U.S. Canal Traffic,
Past and Projected
(million long tons)

	1968	1974	1985	2000
Total Panama Traffic	96.6	147.9	131.2	155.4
U.S. Trade Through Panama (including intercoastal)	62.5	96.9	93.2	100.3
Percent U.S. Traffic	64.7%	65.5%	71.0%	64.5%

Sources: Panama Canal Company, Annual Reports; CACI estimates.

Were the Panama Canal not available to world trade, it is estimated that approximately 40 percent of current traffic would be shifted to alternative markets and sources of supply. Remaining trade would incur additional transportation costs on longer ocean voyages or alternative mixed mode routes. Using CACI's forecasts of future Canal traffic it is estimated that total additional costs to international commerce would range from 1.1 billion dollars in 1985 to 1.5 billion dollars in 2000 (1975 constant dollars and shipping costs). This represents less than one-tenth of 1 percent of the value of world trade in 1975.

The U.S. economy (with a 1975 GNP of 1.5 trillion dollars) could easily absorb the additional cost of goods that would result from the unlikely event of closing the Panama Canal. These costs would have been about 200-400 million dollars if the Canal had been closed in 1974, a miniscule percent of the U.S. GNP. These costs (which represent the economic value of the Canal to the United States) are projected to grow to only 300-600 million dollars by 2000.

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Mr. METCALFE. Now we are going to hear from Leonard Kujawa of the firm of Arthur Andersen & Co.

STATEMENT OF LEONARD KUJAWA, PARTNER IN ARTHUR ANDERSEN & CO., CHICAGO, ILL.

Mr. KUJAWA. Mr. Chairman and members of the committee, my name is Leonard J. Kujawa, partner in the firm of Arthur Andersen & Co., and a certified public accountant. I have been a financial and accounting adviser to the Panama Canal Company since 1962.

At your instigation, I appeared before this committee on several occasions. I appreciate this opportunity to again appear.

For the record I prepared a complete statement which I would request be inserted in the record, Mr. Chairman.

Mr. METCALFE. That will be the order unless there is objection. Hearing none, the statement will be entered into the record.

[Prepared statement of Mr. Kujawa follows:]

PREPARED STATEMENT OF
LEONARD J. KUJAWA
OF
ARTHUR ANDERSEN & CO.

My name is Leonard J. Kujawa. I am a partner in Arthur Andersen & Co., a certified public accountant, and a member of the American Institute of Certified Public Accountants and other professional societies and organizations. My entire 20 years of professional accounting experience has been concentrated on work for rate-regulated utilities and governmental organizations. Among the private companies for which I have responsibility for my firm's work are United Air Lines, Chicago and North Western Transportation Company and several other major rate-regulated utilities. In the governmental sector I had responsibility for my firm's substantial engagement as financial and accounting advisors during the organization phase of Amtrak and I am responsible for my firm's work for the Chicago Board of Education and several other government clients. Regarding the Panama Canal Company, I have been a consultant on various financial and accounting matters since 1962.

My work for similar organizations has included consulting work for the Suez Canal Authority, for the Atlantic-Pacific Interoceanic Canal Study Commission, which studied the feasibility of a replacement for the existing Panama Canal, and for the St. Lawrence Seaway Development Corporation, which is the U. S. entity responsible for operation of the St. Lawrence Seaway.

I have previously testified before this Subcommittee on several occasions as an expert witness regarding financial matters. In addition, I have testified before various Federal and state regulatory bodies, Federal courts and the National Arbitration Board.

Arthur Andersen & Co. is an international firm of independent public accountants with 49 offices in the United States and 57 offices in 34 other countries. Our personnel number in excess of 14,000. We serve approximately 50,000 clients and are among the largest public accounting firms in the world. Our relationship with the Panama Canal Company began in 1951 when we assisted in establishing the initial accountability for the property which was to be assumed by the newly formed Federally chartered Panama Canal Company. Of more immediate significance is the work we have done through continuous engagements for the Company from 1962 to the present time. Following is a brief description of some of our work:

1. We have consulted with the Company and prepared extensive studies to determine the most appropriate method to assess tolls on individual ships for the use of the Panama Canal; included in these studies were evaluations of the universal tonnage measurement system developed by the Inter-Governmental Maritime Consultative Organization, an agency of the United Nations.

2. We assisted in the preparation of the Company's proposals changing the level of tolls to recover increased costs of operation.

3. We assisted the Company in the computerization of many of its data processing activities.

4. We assisted in developing its management reporting system for the purpose of controlling and reporting costs at all levels of management.

5. We have reviewed certain of the Company's accounting policies with respect to cost recognition. Such reviews principally focused upon the adherence of such policies to generally accepted accounting. principles, recognizing that, from a legal viewpoint, the Company is similar to a rate-regulated public utility.

6. Reports we have issued over the last few years to the Panama Canal Company include: Report on Development of Tolls Analytical Data (May, 1969), Report on Impact of Universal Measurement System (March, 1970), Report on Development and Evaluation of Tolls Policies and Alternative Systems (November, 1970), Accounting for the Cost of Excavations (April, 1972), Evaluation of Accounting Changes During Fiscal Year 1973 (August, 1973), Reevaluation of Universal Measurement System (October, 1974).

In my testimony today, I will be using amounts from the records of the Panama Canal Company, but the analyses and conclusions are my own.

Mr. Chairman, your invitation included a series of questions designed to focus the discussion on the importance of the Canal during the last quarter of this century. If we look at what has occurred in the quarter century just past, we see a remarkable financial success, due in large part to the observance of sound financial control. I believe that the key to the next quarter century is continued application of the wisdom contained in these sound financial controls.

The Panama Canal Company and Canal Zone Government agencies were established by Congressional action in 1951 as accountable entities whose costs were to be self-financed from revenues. There has never been a policy that the United States would recoup its investment by a return of cash to the U. S. Treasury.

That investment covers far more than the common image of the Panama Canal as a ditch and some locks would indicate. The combined Panama Canal Company/Canal Zone Government enterprise runs an operation which is unique in the annals of business organizations. In the business world, an organization that carries out on its own the full range of business operations from mining through manufacturing and marketing is said to be vertically integrated. The Canal organization, which has the in-house capability to provide a wide variety of services in support of the "ditch and the locks," represents the ultimate in vertical integration. For example, it operates the following:

- An ELECTRICAL SYSTEM with a capacity of 163 megawatts.
- A TELEPHONE COMMUNICATION SYSTEM with 12,001 instruments.

- A WATER PROCESSING AND DISTRIBUTION SYSTEM furnishing potable water to some 500,000 people in the Canal Zone and the Cities of Colon and Panama City.

- A RAILROAD interconnecting the length of the Canal Zone.

- HOUSING for a population of 13,349 employees and dependents.

- RETAIL OPERATIONS, including SUPERMARKETS, DRY GOODS STORES and CAFETERIAS with an annual sales of $36.4 million.

- A SCHOOL SYSTEM providing education from kindergarten through three years of college with a student population of 12,522.

- HEALTH FACILITIES, including a leprosarium, a mental health center and two general hospitals with a capacity of 360 beds and outpatient services consisting of 371,000 outpatient visits annually.

- CIVIL GOVERNMENT, including 252 policemen, 148 firemen, courts, jails and prisons.

For those of us who have to travel away from home a lot, there is a recognition of the rarity and importance of reliable service. We have all had experiences--not always in foreign parts--of water that cannot be consumed, telephones that require repeated dialing before a satisfactory connection is made, trains that run late, and sometimes, even, electrical systems that break down. What the Panama Canal Company has been able to do through its totally integrated system of facilities is to provide highly reliable service to world shipping. This reliability, as I will point out in a moment, has considerable economic value.

In a financial sense, this integrated operation represents a very complex financial management problem because less than 50% of gross revenues are obtained directly from tolls charged ships for use of the Canal. Gross revenues of the combined Canal enterprise in 1976 were $299.9 million, of which $135.0 million were from tolls. The remainder was revenue from sales of services to employees, to shipping, to the military services in the Canal Zone and other users. Thus, the Panama Canal not only has a minieconomy producing a variety of essential services, but also has a variety of different users to serve.

A QUARTER CENTURY OF FINANCIAL SUCCESS

As an accountant, I have a natural propensity for financial facts. This attracted me to look at what has occurred in the past in Canal finances. The first year under the new financial structure established by Congress was fiscal year 1952 and the last available results are for fiscal year 1976. Coincidentally, this elapsed period covers a quarter of a century. It was a very important quarter century with tolls amounting to $1,812 million and 2,048 million tons of cargo transiting the Panama Canal. Compare this to the first 37 years of Panama Canal operations, from 1914 to 1951 during which tolls amounted to $727 million with 772 million tons of cargo transiting the Panama Canal. Although it is the early years of Panama Canal history that arouse visions of great accomplishments, the past quarter century has seen the Panama Canal develop economic significance: 70% of all cargo that transited the Panama Canal in its history did so in the past quarter century.

An informative story of the financial affairs of the Panama Canal develops from a comparison of the results for fiscal 1952 with fiscal 1976, which is shown as Exhibits 1 and 2 to my testimony. An analysis of this comparison reveals the following:

1. Tolls grew from $30.4 million to $135.0 million, or an increase of 350%. Of this increase, $80.5 million is due to increases in traffic level and $24.1 million to toll increases made in the period 1974 through 1976.

2. Other transit revenues increased primarily because of increased transits and ship sizes as well as increases in the rates charged for these services.

3. Revenues from supporting services grew principally due to price increases required to offset cost increases.

4. Revenues from Canal Zone Government increased to an extraordinary degree due to both an increase in the level of services and changes in pricing policy. In 1952, medical services provided to both employees and military personnel were largely at no cost to the recipient, whereas, in fiscal 1976, Canal employees and employees of other government organizations were required to make a contribution toward the cost and all U. S. Government organizations in the Canal Zone, including the military, were required to bear their full share of the cost.

Although total employment actually declined during the period from 18,239 to 13,861, total Panama Canal Company and Canal Zone Government expenses were up from $80.9 million to $307.3 million. The most significant factor was increases in wage and salary levels from $43.3 million to $156.1 million. Thus, the traffic growth that occurred was used principally to finance increases in wage and salary levels. The average salary of a U. S. citizen in 1952 was $5,897 per annum compared with the 1976 per annum average of $19,927, or a 238% increase. In contrast,

non-U. S. citizen employees had an average wage level in 1952 of $1,269 per annum and in 1976 of $8,143 per annum, or a 542% increase.

During that quarter of a century, not only were all costs recovered from revenues but a net margin of $90 million was achieved. This is a net amount in that fiscal years 1973 through 1976 recorded losses and all prior years had net margins in varying amounts. These net margins, in combination with the recovery of costs not requiring the current outlay of funds, principally depreciation, provided all the cash necessary to finance the Company's capital program of $284.1 million, while $78.1 million was received by appropriations for Canal Zone Government capital programs. It is interesting to note that the total amount of that capital program of $362.2 million approximates the total original construction costs of the Panama Canal from 1903 to 1914.

The 1951 legislation establishing the Company requires the Panama Canal to pay interest on the investment of the U. S. in the Panama Canal, whereas no such interest was payable on the investment in the Canal Zone Government. Over the 25 years, the total interest payments made by the Company to the Treasury were $269.1 million, constituting an average of 2.05% on the combined U. S. investment in the Panama Canal Company and Canal Zone Government.

The original 1951 legislation did not require a systematic repayment of the U. S. investment in the Panama Canal Company but did provide for repayment of the investment in Canal Zone Government plant over the service lives of the facilities. Over the 25 years, the Canal Zone Government has returned $48.1 million to the U. S. Treasury while receiving $78.1 million for new capital facilities, or a net additional investment of $30 million. In the case of the Panama Canal Company, it is only required to return cash in excess of its needs; over the 25-year period it has returned $40 million to the U. S. Treasury.

CONCEPT OF SELF-FINANCED ACCOUNTABLE ENTITY SHOULD CONTINUE

Experience has thus confirmed the financial soundness of the structure established for the Canal by Congress. What are the principal characteristics of that structure?

In brief, it provides for a fully accountable entity within a policy that the costs of providing services should be financed by user charges. This concept has two strong advantages for Canal users:

1. Disclosure of results.
2. Reliability of user charges.

Long before the value of an open administration was generally recognized, the Panama Canal Company and Canal Zone Government were required to maintain their financial books open to the world. The costs for which they were held accountable were accounted for in accordance with generally accepted accounting principles and their financial reports were audited by the General Accounting Office. From the point of view of the self-interest of the user, cost incurrence is under his scrutiny, thus placing pressure on management to incur costs more prudently. From the standpoint of the Panama Canal, this places the users on notice that additional demands for service would have attendant costs for which they would be charged, thus keeping demands for additional services within reasonable bounds.

The assurance that prices will be set based on cost gives the user confidence in the reliability of the price-setting process. He is assured that prices will be rationally set and, thus, he can predict his future course of action with more reasonable certainty. This permits him to make the required long-range plans for investment in facilities such as ships, with reasonable assurance that his investment can be recovered. Thus, through its reliability, the Canal is able to permit users to limit their risks and have a basis for long-range planning. This is a positive economic contribution and is essential for a service such as the Canal to be able to attract users.

The financial soundness of the structure not only provides advantages to users, but also to the U. S. taxpayer because it assures that all costs are taken into account and tolls set to recover them. If tolls are not able to recover costs, that is, if users are unwilling to pay the price necessary to cover costs, then the Company should not be willing to incur costs. Otherwise a subsidy would be necessary and, if that time comes, the appropriate conclusion would be that the Panama Canal represents an uneconomical operation. At that point, subsidies are better spent on alternatives to the Canal.

The only way possible to measure precisely the financial viability of the Canal is through exactly the same kind of accountable entity that now exists, with the same responsibility for its costs. The continuance of the concept of a combined accountable entity self-financed from its own revenues is in the best interests of the United States as the owner of the Canal as well as to the United States and other countries of the world as users of the Canal.

WORLD TRADE--THE BENEFICIARY OF UNITED STATES POLICIES

It should be remembered that the United States decision to construct the Panama Canal grew out of national pride considerations and was not looked upon as a commercial undertaking. The question as to the amount of the unrecovered investment of the United States in the present enterprise is a very difficult one to answer. There are good records indicating that the construction costs during the period 1903-1914 amounted to $386.9 million. After that period, up until 1951, the records are less clear; there are many known items which do not appear in the Panama Canal records, such as the $25 million indemnity payment to Colombia and retirement benefits to construction workers paid by the Civil Service Commission.

The most substantial undertaking to determine the level of the unrecovered investment in the enterprise occurred in 1951 as part of the establishment of the Panama Canal Company/Canal Zone Government. This was a substantial undertaking requiring hundreds of man-years of work by both accountants and engineers. The cost of military bases, the payment to Colombia, the aborted third locks project, facilities not currently being used and interest costs during the construction period were excluded from the investment of the United States. The resultant amounts, then, can be considered completely sanitized of any controversy. The following two tables show, for 1952 and 1976, the cost of property, plant and equipment and the net direct investment of the United States.

Investment in Property, Plant and Equipment

Fiscal Year 1952 and Fiscal Year 1976

	Millions of Dollars		
	1952	1976	Increase
Property, plant and equipment--at cost-			
Panama Canal Company	$586.6	$864.6	$278.0
Canal Zone Government	33.7	108.3	74.6
Total	$620.3	$972.9	$352.6
Less- Valuation allowances-			
Panama Canal Company	$176.0	$362.8	$186.8
Canal Zone Government	10.6	48.9	38.3
Total	$186.6	$411.7	$225.1
Net book value	$433.7	$561.2	$127.5

Unrecovered Investment of the U. S. Government

Fiscal Year 1952 and Fiscal Year 1976

	Millions of Dollars		
	1952	1976	Increase (Decrease)
Equity of the United States Government-			
Panama Canal Company-			
Interest bearing	$373.3	$319.0	$(54.3)
Noninterest bearing	-	18.1	18.1
Earned capital reinvested	71.1	175.4	104.3
Total	$444.4	$512.5	$ 68.1
Canal Zone Government	29.4	69.2	39.8
Total unrecovered investment	$473.8	$581.7	$107.9

A prudent investor contemplating an expenditure of this level would have two reasonable expectations. The first would be that he would recoup his investment in cash over some period of

time. The second would be that during the period in which the base investment remained unrecovered there would be a reasonable level of compensation for the capital employed, either in the form of interest or profits. The United States, as an investor in the Panama Canal, has basically received neither.

Although the Panama Canal Company/Canal Zone Government is accountable for the investment of the United States, in the case of the Panama Canal Company, there is no requirement for a systematic repayment to the U. S. Treasury. For the Canal Zone Government, the requirement is that the investment be repaid over the remaining life of the facility in use. At the end of fiscal year 1976, the books of the Panama Canal Company/Canal Zone Government reflect an unrecovered investment of the United States of $581.7 million.

Only in the case of the Panama Canal Company was any compensation required to the U. S. Treasury for the cost of the capital employed. As prescribed by law, the amount varies and in 1952 was 1.95% and in 1976, 5.199%.

Another dimension relating to the unrecovered investment of the United States in the Panama Canal enterprise is to adjust it to reflect the current value of the dollar. The construction of the Panama Canal represented the largest civil engineering project undertaken by the United States Government at that time and is grossly understated in terms of today's price levels when stated as $386 million in terms of price levels prevailing during the construction period. Applying the Department of Commerce GNP

Price Deflator to the cost of the assets transferred to the Company in 1951, the unrecovered investment of the United States in the Panama Canal Company was $2.8 billion at June 30, 1976. Since this amount excludes facilities of the Canal Zone Government, the grand total would exceed $3 billion.

The U. S. Government's generous policy regarding recovery of capital from the Panama Canal enterprise in combination with very modest charges for interest on its investment has the effect of understating the economic cost of Canal service. Although the assessment of tolls to cover costs has proven successful in the encouragement of world trade, the understatement of capital costs results in a lower level of tolls than should economically prevail. Thus, if it is maintained that the user is obtaining a bargain from the Panama Canal it, in part, reflects a generosity on the part of the United States as owner of the Panama Canal. Since over two thirds of the use of the Panama Canal is from foreign users, it is this foreign commerce that enjoys the bulk of this economic generosity.

THE ECONOMIC SIGNIFICANCE OF THE PANAMA CANAL

Although from an investment standpoint the Panama Canal has been a financial burden to the United States, the United States has benefited economically from the Panama Canal as a user. The United States represents approximately one third of the total use of the Panama Canal and thus shares in the economic benefits from the existence of the Canal along with many other countries.

There has been, and continues to be, much argument regarding the extent of these economic benefits to users. Some studies have concluded that enormous benefits accrue and that past and present Panama Canal toll levels represent such a saving to users that tolls could be increased in magnitudes several times over because of the bargain-basement level of tolls now in effect. I do not share these views.

In the early years of its existence, the Panama Canal no doubt constituted something approaching a monopoly in providing services to the transportation industry. This is best demonstrated by intercoastal United States traffic that, in the early days of the Canal, constituted the most important source of use. But, this early use must be placed in context: the total usage in revenues for the years 1914 - 1926 is approximately equal to the 1976 usage! Thus, it took approximately 12 years of usage in the early years to equal one year of current usage. In these early years revenue fell far short of costs.

The Panama Canal today is not in a monopoly position but is in competition with many alternatives. Its economic value results from its ability to provide a transportation alternative to shippers. In an economic sense, this is significant in that economic diversity in the long run produces the lowest cost to consumers through the force of competition in the market place. To be more specific, the absence of the Panama Canal would severely limit the economic ability of ships 70,000 deadweight tons and smaller from competing with larger ships. Since the great majority of the ships in existence in the world today are 70,000 deadweight tons or smaller, this limitation would be a significant one.

To those that argue that Panama Canal tolls can be increased significantly with no effect on traffic, I would say "prove it in the market place." The most informed wisdom and knowledge available regarding the value of the Panama Canal is produced by the individual users of ships and shippers who are making transportation decisions on a daily basis. If their knowledge could be assembled and maintained, it would exceed the knowledge of a building full of bureaucrats studying the question in Washington or elsewhere.

Tolls must be adjusted moderately and prudently or there can be severe dislocations that would set into motion irrevocable economic consequences. In a short term, tolls could be increased very substantially creating economic hardship for the users who, in the short term, would have available few alternatives. However,

such action would have serious long-term consequences in that it would cause users to scurry for alternatives which would require long-term investments. Once the commitment is made in an alternative, the traffic would be very difficult to reattract to the Panama Canal. This is best illustrated by the closure of the Suez Canal in 1967. The resultant investment in giant ships to utilize the Cape of Good Hope route (ships too large to transit the Suez Canal) was such a bonanza to ship builders that one German builder was quoted as saying that he was "willing to erect a monument to President Nasser." Upon reopening, the Suez Canal was, for the most part, unable to reattract this traffic.

Panama Canal traffic levels grew dramatically in the past 25 years leading to the conclusion that it would soon run out of capacity. Present projections indicate a moderate growth for the remainder of this century--the Panama Canal has reached economic maturity. This maturity presents the problem of how to finance cost increases that are likely to occur. Economic studies indicate that there is sufficient capacity to increase toll levels in the future to recover the expected cost increases. Accordingly, the prospect is that the Panama Canal will remain financially viable for the remainder of this century.

THE ECONOMIC FANTASY OF A NEW CANAL

The physical limitations of the existing Panama Canal have raised questions regarding its economic viability and the desirability of its expansion or replacement. The most substantial analysis regarding alternatives was conducted by the Atlantic-Pacific Interoceanic Canal Study Commission, which completed its work in 1970. I understand that the recent estimates for a sea level canal at Route 10 in Panama, on the basis of present price levels, indicate a cost of some $5-$6 billion. Estimates for expansion of the existing Canal by the addition of a third set of locks are $2.6 billion.

The interest cost at 7% for $5-$6 billion would be $350-$420 million. The interest cost on $2.6 billion would be $182 million annually. To place these costs in perspective, fiscal year 1976 tolls revenues were $134 million.

The reason given for expansion or replacement of the existing Canal is to accommodate those ships too large to use the present facility. But these are the ships that enjoy strong economies of scale due to increased ship size and because of these strong economies of scale these ships find alternatives to the use of the Canal more economically attractive.

In contrast to the positive economic scale of ship size, a canal has the disadvantage of negative economies of scale. By this I mean that each additional foot of draft to accommodate larger ships requires progressively higher amounts of investment.

The facts are devastating and lead me to the conclusion that a new canal represents economic fantasy. To make huge investments to attract ships which have tolls potential per ton of cargo capacity that is not greater but less than smaller ships represents economic thinking that I do not comprehend.

The existing Canal provides service to a great majortiy of the ships that exist in the world. It does so at cost levels which it has and can continue to recover through revenues from its users. Based on present traffic projections, its capacity limitations in terms of movement of ships is sufficient for at least the remainder of this century. I conclude that the present Canal facility should be maintained, operated and improved as necessary within the design envisioned by the original construction.

IN SUMMARY

The economic value of the Panama Canal to the United States and to the world is a combination of effects, including its reliability for planning purposes, its ability to pay its own way, the economic diversity it provides, and the savings realized by its users. Only this last item has any relation to what you can charge for the service.

The history of the finances of the Canal operation indicates that the growth in costs over the past 25 years was met principally by traffic growth supplemented by two toll increases. These toll increases were necessary and financially prudent in that they allowed the Panama Canal to continue on its financial break-even course while not exceeding the maximum toll levels where users would start to divert to alternatives that could offer greater savings. But, future toll increases must be approached with increasing caution. Short-term responses to toll increases are not reliable indicators. Since we live in the present, the human thing is to be more concerned with the short term, but, in the long term, an imprudent toll increase could sour traffic growth and set in motion irreversible decisions. Loss of traffic coupled with growth of costs could result in higher unit costs and the need for further toll increases, producing a vicious cycle that would result in eventual financial collapse.

In conclusion, I see the Panama Canal as a sound, well-run and well-appreciated operation. It is a good thing the way it is and, in my opinion, its future value can be maximized to the United States, to Panama, and to the world by keeping it running with its present reliability and stability.

EXHIBIT 1

PANAMA CANAL COMPANY/CANAL ZONE GOVERNMENT

COMPARATIVE RESULTS OF OPERATION

FISCAL YEARS 1952 AND 1976

	Millions of Dollars		
	1952	1976	Increase (Decrease)
REVENUES:			
Panama Canal Company-			
Transit-			
Tolls--commercial	$30.4	$135.0	$104.6
Other (harbor pilotage, tugs, etc.)	2.4	28.0	25.6
Total transit revenues	$32.8	$163.0	$130.2
Supporting services-			
Sale of commodities	$27.8	$ 36.7	$ 8.9
Sale of services	19.2	50.4	31.2
Total supporting services	$47.0	$ 87.1	$ 40.1
Total revenues Panama Canal Company	$79.8	$250.1	$170.3
Canal Zone Government	3.7	49.8	46.1
Total revenues	$83.5	$299.9	$216.4
EXPENSES:			
Panama Canal Company-			
Direct expenses	$27.6	$129.8	$102.2
Cost of commodities sold	23.7	26.1	2.4
Administrative	3.4	43.0	39.6
Depreciation and amortization	5.5	19.4	13.9
Interest on U. S. investment	7.3	16.6	9.3
Total expenses Panama Canal Company	$67.5	$234.9	$167.4
Canal Zone Government	13.4	72.4	59.0
Total expenses	$80.9	$307.3	$226.4
Operating income or (loss)	$ 2.6	$ (7.4)	$(10.0)

PANAMA CANAL COMPANY/CANAL ZONE GOVERNMENT

COMPARATIVE SELECTED DATA

FISCAL YEARS 1952 AND 1976

	1952	1976	Increase (Decrease)
PERSONNEL:			
Employees	18,239	13,861	(4,378)
Compensation	$43.3m	$158.1m	$114.8m
TRANSITS (all vessels):			
Vessels	9,169	13,201	4,032
Tons of cargo	36.9m	117.4m	80.5m
CAPITAL EXPENDITURES	$9.6m	$25.0m	$15.4m

Mr. KUJAWA. Mr. Chairman, your invitation included a series of questions designed to focus discussion on the importance of the Canal during the last quarter of this century. If we look at what has occurred in the last quarter century, we see remarkable financial success due in large part to the observance of sound financial control. I believe the key to the next quarter century is continued application of the wisdom contained in these financial controls.

The United States investment in the Panama Canal enterprises covers far more than its common image as a "ditch and some locks" would indicate. The combined Panama Canal Company/Canal Zone Government enterprise runs an operation unique in the annals of business organizations.

The Canal organization, which has the in-house capability to provide wide variety of services in support of the "ditch and locks," includes the following:

An electrical system with a capacity of 163 megawatts;

A telephone system with over 12,000 instruments;

A water processing and distribution system furnishing potable water to over 500,000 people;

A railroad interconnecting the length of the Canal Zone;

Housing for a population of over 13,000 people;

Retail operations of annual sales exceeding $36 million;

A school system providing education from kindergarten through three years of college, with a student population of over 12,000;

Health facilities, including hospitals with a capacity of 360 beds, and out-patient services consisting of over 371,000 out-patient visits annually;

Civil government, including policemen, firemen, courts, jails and prisons.

What the Panama Canal Company has been able to do through its totally integrated system of facilities is to provide highly reliable service to world shipping.

In a financial sense, this integrated operation represents a very complex financial management problem because less than 50

percent of gross revenues are obtained directly from tolls. The remainder consist of revenue from sales of services to employees, to shipping, to the military services in the Canal Zone, to the Republic of Panama and to other users.

These activities are so interrelated that a synergism is produced that can be disproportionately affected if any one part is disturbed.

Mr. Chairman, although it is the early years of the Panama Canal history that arouse visions of great accomplishments, the past quarter century has seen the Panama Canal develop economic significance. Seventy percent of all cargo that has transited the Panama Canal in its history has done so in the past quarter century. An informative story of the financial affairs of the Panama Canal develops from a comparison of its operating results for 1952 with those for 1976.

Tolls grew from $30 million to $135 million, an increase of 350 percent. Of this increase, $81 million is due to increases in traffic levels and $24 million to toll rate increases.

Although total employment actually declined during the period from 18,200 to 13,900, expenses were up from $81 million to $307 million.

The most significant factor was increases in wage and salary levels from $43 million to over $158 million with the average salary of U.S. citizen employees increasing over the 25-year period by 238 percent and salaries of non-U.S. citizen employees increasing by 542 percent. Thus the traffic growth that occurred was used principally to finance increases in wage and salary levels.

During that quarter of a century, not only were all the costs recovered from revenues, but a net margin of $90 milion was also realized. These net margins, in combination with the recovery of depreciation, provided all the cash needed to finance the company's capital program of $284 million, while $78 million in appropriations was received by the Canal Zone Government for its capital program. It is interesting to note that the $362 million total amount of these capital programs over the 25 years approximates the total original construction cost of the Panama Canal from 1903 to 1914.

Over the 25 years, total interest payments to the U.S. Treasury were $269 million, constituting an average of approximately two percent on the combined United States investment in the Panama Canal Zone and Canal Zone Government.

The original 1951 legislation did not require a systematic repayment of the United States investment in the Panama Canal Company. Over the 25 years the Canal Zone Government has returned $48 million to the U.S. Treasury while receiving $78 million, a net additional U.S. investment of some $30 million.

In the case of the Panama Canal Company, the legislation requires it only to return cash in excess of its needs. Over the 25 years some $40 million was thus returned to the United States Treasury. Based on that financial success, experience has confirmed the wisdom of the structure established for the Canal by the Congress.

What are the principal characteristics of that structure? In brief, it provides for a fully accountable entity within the framework of a policy that the cost of providing services should be financed by user charges.

This concept has two strong advantages: disclosure of results and reliability of user charges. Long before the value of an open administration was generally recognized, the Panama Canal Company was required to maintain its financial books open to the world and its operating results have been published each year in its Annual Report.

The assurance that prices will be set based on costs gives users confidence in the reliability of the price-setting process. This permits them to make required long-range plans for investment in facilities such as ships with reasonable assurance that their investments can be recovered.

The financial soundness of the structure not only provides advantages to users, but also to the United States taxpayers because it assures that all costs are taken into account and tolls set to recover these costs. If tolls are not able to recover costs, that is, if users are unwilling to pay the price necessary to cover costs, then the company should not be willing to incur those cost.

The only way to measure the financial viability of the Canal is through the same kind of accountable entity that now exists with the same responsibility for its costs. The continuance of the concept of a combined accountable entity, self-financed from its own revenues, is in the best interests of the United States as the owner of the Canal, as well as to the United States and other countries of the world as users of the Canal.

It should be remembered that the United States decision to construct the Panama Canal grew out of national pride considerations and was not looked upon as a commercial undertaking. The question as to the amount of the unrecovered investment of the United States in the present enterprise is a very difficult one to answer.

The most substantial undertaking to determine the level of the unrecovered investment in the enterprise occurred in 1951 as part of the establishment of the Panama Canal Company. The costs of military bases, the payment to Columbia, the aborted third locks project, facilities not currently being used, and interest costs during the construction period were excluded from the investment of the United States. The resultant amounts then can be considered sanitized of controversy.

As of June 30, 1976, the "sanitized" original cost of the facilities of the Panama Canal enterprise less accumulated depreciation is $561 million. The unrecovered investment of the United States reflected on the books of the Panama Canal-Canal Zone Government as of that same date is approximately $582 million.

A prudent investor contemplating an expenditure of this level would have two reasonable expectations. The first would be that he would recoup his investment in cash over some period of time. The second would be that during the period in which the investment remained unrecovered there would be a reasonable level of compensation for the capital employed, either in the form of interest or profits. The United States as an investor in the Panama Canal has basically received neither.

Although the Panama Canal Company is accountable for the investment of the United States in it, there is no requirement for a

systematic repayment of such investment to the United States Treasury. For the Canal Zone Government, the requirement there is that the investment be repaid over the remaining life of the facilities and use.

Another dimension relating to the unrecovered investment of the United States in the Panama Canal is to adjust the investment to reflect the current value of the dollar. The construction of the Panama Canal represented the largest civil engineering project undertaken by the United States Government at that time and the investment is grossly understated in terms of today's price levels. Utilizing the Department of Commerce GNP price deflator, the unrecovered investment of the United States would exceed $3 billion

The United States Government's generous policy regarding recovery of capital from the Panama Canal enterprise, in combination with very modest charges for interest, has the effect of understating the economic cost of Canal service. Thus, if it is maintained that the user is obtaining a bargain from the Panama Canal, it in part reflects a generosity on the part of the United States as owner of the Panama Canal. Since over two-thirds of the use of the Panama Canal is from foreign sources, it is this foreign commerce that enjoys the bulk of this economic generosity.

Although from an investment standpoint the Panama Canal has been a financial burden to her, the United States does share in the economic benefits from the existence of the Canal, along with many other countries. There has been and continues to be much argument regarding the extent to which these economic benefits exist to users. Some studies have concluded that enormous benefits accrue and that the past and present Panama Canal toll levels represent such a saving to users that tolls could be increased in magnitudes several times over because of the bargain basement level of tolls now in effect. I do not share these views.

The Panama Canal today is in competition with many alternatives and its economic value to world commerce is a function of its ability to provide a transportation alternative to shippers. In an economic sense, this is significant in that economic diversity in the long run produces the lowest cost to consumers through the force of competition in the marketplace.

To be more specific, the absence of the Panama Canal would severely limit the economic ability of ships, 70,000 deadweight tons and smaller, from competing with larger ships. Since the great majority of ships in existence in the world today are 70,000 deadweight tons or smaller, this limitation would be a significant one.

Tolls must be adjusted moderately and prudently or there could be severe disclocations that would set in motion irrevocable economic consequences. In the short term tolls could be increased very substantilaly, creating economic hardship for the users who in the short term would have available few alternatives.

Panama Canal traffic levels grew dramatically in the past 25 years, leading to what I consider to be the erroneous conclusion that it would soon run out of capacity. Present projections indicate only moderate growth for the remainder of this century and the Panama

Canal has thus reached economic maturity. This maturity presents the problem of how to finance cost increases that are likely to occur.

Economic studies indicate that there is sufficient flexibility to increase toll levels in the future to cover the expected cost increases. Accordingly, the prospect is that the Panama Canal can remain financially viable for the remainder of this century.

The physical limitations of existing Panama Canal have raised questions regarding its economic viability and the desirability of its expansion or replacement. I understand recent estimates for a sea level canal indicate a cost of some 5 to $6 billion. Estimates for the expansion of the existing Canal by the addition of a third set of locks are $2.6 billion. The interest cost at 7 percent for $6 billion would be $420 million annually. The interest costs on $2.6 billion would be $182 million annually. To place these costs in perspective, total 1976 toll revenues were $134 million.

The reason given for the expansion or replacement of the existing Canal is to accommodate those ships too large to use the present facility. But these are the ships that enjoy strong economies of scale, due to their increased size and, because of these strong economies of scale, these ships find alternatives to the use of the Canal more economically attractive.

In contrast to the positive economies of scale of ship size, a canal has disadvantages of negative economies in scale. By this I mean that each additional foot of draft to accommodate larger ships requires progressively higher amounts of investment. These facts are devastating and lead me to conclude in a financial sense, that a new canal represents economic fantasy. To make huge investments to attract ships which have tolls potential per cargo ton of capacity that is not greater but less than smaller ships represents economic thinking that I do not comprehend.

The existing Canal provides service to a great majority of the ships that exist in the world today. It does so at cost levels which it has and can continue to recover through revenues from its users. Based on present traffic projections, its capacity limitations in terms of movement of ships is sufficient for at least the remainder of this century. I therefore must conclude that the present Canal facility should be maintained, operated, and improved as necessary within the design envisioned by the original construction.

That completes my statement, Mr. Chairman.

Mr. METCALFE. Thank you , Mr. Kujawa.

I would like to make the announcement that there will be another panel following this panel, and it is the intention of the Chair to continue on, after we have completed questioning and discussion with this panel, with the second panel. I have proposed we ask the panel some general questions and then go to specific questions of each member of the panel.

I wish to point out that the discussion of the Canal's closure is a means of evaluating the value of the Canal and is not meant to imply the Canal will be closed by the United States or Panama, but rather, this is just a way of assessing the value, which is the purpose of these two economic panels.

My questions are as follows: first to the general panel, is the Panama Canal of less or more importance to the United States than it was 25 years ago?

If the value of the Canal has changed, why has it changed, and how would the value change in the next quarter century?

Does any member of the panel wish to answer that question?

General PARFITT. Mr. Chairman, I think there seems to be general consensus or general agreement that in relative terms the value has decreased, but nevertheless, there is still a significant positive value both now and for the foreseeable future.

Mr. METCALFE. Thank you.

The next question to the panel is what kind of improvements do you foresee as being necessary for the Canal in the next 25 years, if it is to be economically viable? What would be the cost of these improvements and who would or could handle these costs?

General PARFITT. Mr. Chairman, we have lengthy studies which attempt to determine the projects that are required to accommodate increasing traffic. We call them capacity studies.

We have incorporated appropriate portions of those capacity studies in a five-year capital program. At the moment we would anticipate the total cost for capital replacements to be in the order of magnitude of somewhere between $25 million and $30 million per year. In the near term it is envisioned that the company can finance them internally, through the depreciation process. In the long term it is entirely possible, with growing inflation, that we might be called upon to seek outside financing for those capital requirements.

It is required to continually reappraise the total requirements because we are continually adjusting our view of what the future holds in terms of traffic.

For example, it was not too long ago that we were estimating that there would be a requirement to accommodate approximately 27,000 ships near the end of the century, which was deemed then to be the capacity of the Canal. Most recent studies, reflecting a change in mix and size of ships, indicate that the capacity of the Canal is more nearly 20,000, about 55 ships per day. However, the estimates of the traffic have likewise been reduced.

I indicated in my statement somewhere in the magnitude of 46 ships per day. We are constantly readjusting and reappraising the capital requirements, depending upon our best view of the future traffic. At the moment we estimate less growth than we once envisioned. Therefore, we are more and more confident that the kind of capital programs we are envisioning will take care of the traffic predicted.

To give you an idea of what we are talking about in terms of physical things: we need to have additional locomotives, we need to have locomotive turntables to expedite the handling of ships; we need to have additional tugs; and we need to widen some of the bends in the Canal because of the bigger size of ships and the safety problems that they incur. We also need to deepen the Canal slightly. As the ships increase in size and number we need more water, and so on.

So we have a pretty good definitive idea of what is needed and we are watching closely the trends of traffic so we can apply our capital funds realiastically and in a timely fashion.

Mr. METCALFE. Thank you.

Does any other member of the panel wish to comment on those two questions that I have asked? If so, simply so indicate; if not, we will proceed.

How do you see the value of the Panama Canal to the nations of Latin America changing? Will the Canal be more or less important to them in the future?

Dr. HAYES. I think that the Latin American countries will trade more in the future than they have in the past. Much of this trade, however, will occur with the developed countries; much of West Coast Latin American trade is now taking place with Japan as Japan buys the raw materials from West Coast Latin America and begins to invest in those countries. The same is true on the East Coast where much of the trade occurs with Europe. Therefore, in spite of the rate of growth which one might project for Latin American economies as a whole, one is not likely to see that same rate of growth in traffic through the Canal.

Selected countries, of course, would use the Canal heavily. Colombia, which has major ports on either side of the Canal, Panama itself, the Central American countries will use the Canal somewhat more. Major products which have gone through the Canal in the past, such as petroleum, will probably not pass through the Canal in as great volume in the future as they have.

Ecuador has used the Canal heavily in the past because Ecuador could not refine petroleum from her new oil fields in the country and had to ship that petroleum to the West Indies for refining, and then reimport it, effectively. With new refinery capacity in Ecuador, this will no longer occur.

Alaskan petroleum coming on the West Coast of the United States will have similar effects. Mexico will bcome a major supplier of petroleum to the United States in the future. This is at least a possibility. So some of the major commodities which have been shipped through the Canal in the past will not go through the Canal in the future, in spite of growth in the Latin American economies.

Several of the countries, in the southern cone particularly, do not use the Canal heavily at all, have begun using large ships around the Cape in their trade with Europe and Japan.

Mr. BOWEN. Will you yield?

Mr. METCALFE. Yes.

Mr. BOWEN. I note Dr. Hayes has done some political scientific study in this area along with studies of economic impacts.

I have talked to a number of Latin Americans who indicate to me that their reliance upon the Canal is so great that they are far more interested in the effective management of the Canal than they are in seeing a change in the status of the Canal. Whereas their governments do feel obligated to make certain statements on behalf of change in Canal control, privately there is widespread sentiment throughout Latin America for continuation of the status quo with respect to the Canal.

What would you say as to the private political sentiment in Latin America on this subject since that is an area of your expertise?

Dr. HAYES. I am aware that these concerns have been expressed and that, while the Latin American countries in many ways need,

for political reasons, to support Panama's claim for authority over the Canal, they are concerned about management of the Canal in the future and its availability to their national commerce.

I think that in a cooperative spirit the United States participating with Panama in any kind of changeover of authority under a proposed treaty should be able to guarantee the maintenance and efficient operation of the Canal over the period of time of the proposed treaty. Therefore, in the foreseeable future, the efficiency of the Canal ought not to be in jeopardy.

Mr. METCALFE. Any other members of the panel?

Dr. GIBBS. If I may respond to this question, it is my notion that the less developed countries may in fact misperceive how significant the Panama Canal operation is in terms of their own economies.

The economic studies that I have referenced in my own work have indicated that the relation of supply and demand for the kind of commodities that these countries tend to trade in is such that changes in the transportation costs for these goods would in effect tend to impact more on the developed countries than it would on the developing countries, so that if in fact toll levels were raised, or the Canal service were to decline or for some reason transportation costs in general were to rise, a significant portion of that transportation cost increase would not impact on these countries.

Now as I say, I am not sure that these countries' view, in aggregate, is quite the same as the view, for example, of the people who are carrying on the trade. But it is my suspicion, my notion, that in fact if the service were to decline, if prices were to rise, that the developing countries would tend to lose less than it may appear that they would.

Mr. BOWEN. If the gentleman will yield further, then, I would ask Mr. Gibbs, in talking about Latin American nations, which ones do you classify as developed and which ones underdeveloped? Are you lumping them all together?

Dr. GIBBS. I am lumping them all togehter in aggregate. My work did not go into that fine a detail of examining each country individually.

Mr. BOWEN. All the testimony presented indicates that the heaviest impact would be upon Latin American nations. I think one figure mentioned was that 24 percent of the nations' commerce flows through the Canal. I think probably there has been an impression given in the press that that is sort of a uniform opposition to the United States, or uniform support for transfer of authority in the Canal Zone on the part of Latin Americans, whereas my conversations with businessmen and shippers involved in foreign trade, and also with those who do economic analysis from a Latin American viewpoint, indicate possibly some grave apprehensions about transfer based upon the Panamanian ability to handle things in the future.

Dr. HAYES. Mr. Chairman, I would like to make an additional comment on that point.

I think one of the fears of the Latin American countries is the probably ungrounded fear that Panama would raise tolls to intolerable levels and that this would price some of their raw material, their primary commodity exports, out of the world market.

As the several statements have indicated, tolls have been increased recently in the past and there is a strong possibility that tolls will be increased in the future to cover operating costs, whether either Panama or the United States remains the owner of the Canal, in control of the Canal, that is. It is also the case that with much of the traffic, whichever owner increased tolls beyond the tolerable level would cause more harm to itself as owner of the Canal than it would to international trade, which can find alternatives. Individual countries might be jeopardized in the short run, but would surely find alternative markets in the long run.

It is not impossible for West Coast Latin American countries to export their primary commodities to West Coast United States and then ship by land across this country, and the same would hold for East Coast to West Coast.

Mr. DORNAN. Will the gentleman yield?

Dr. Hayes, when were you last down to the Canal Zone?

Dr. HAYES. I regret that I have not been in the Canal Zone.

Mr. DORNAN. In February I talked to a former Panamanian foreign minister and he said that the Panamanian government was interested in raising the tolls at least tenfold. I wonder if you would comment whether a tenfold total increase would be an economic hardship on many South American countries.

Dr. HAYES. As I stated, individual countries would in the short run be jeopardized by even marginal toll increases as their products become more expensive. They would find alternative means of shipping.

Mr. DORNAN. Mr. Bowen's question is significant because this was also my understanding in traveling in South America. There is an official Latin position that is taken publicly that is not in "sync" with the private position about the instability in Panama. I recall discussing this at least with Governor Parfitt.

I wonder if you could comment upon your talks both formal and informal with Latin heads of state, foreign ministers, and business leaders, who pass through the Canal Zone area, particularly since Panama has grown into a banking center similar to Switzerland in Europe.

What are your impressions, Mr. Parfitt, on the private positions stated by Latin American leaders?

General PARFITT. As I stated during your visit, the strong political position of the countries is in support of Panama. Behind that is a concern, a stated concern from the point of view of economics. It is of considerable concern to Latin American countries that tolls might be raised inordinately.

This comes about because of many pronouncements made to that effect by Panamanian spokesmen. They are equally concerned about the degree of skill with which the Canal would be maintained and operated.

The United States has a tremendous reputation, earned over the years, for operating efficiently, and on a no-profit basis. They fear that they might suffer in both those areas if the Canal were transferred to Panama.

Mr. METCALFE. Thank you.

I have only one other question for the general panel.

What steps would be necessary if the United States decided it must recover all of its investments in the Canal and the Zone by the year 2000.

Mr. KUJAWA. The tolls would have to be increased substantially for that to be accomplished. The present policy of the United States, as I enunciated in my testimony, does not provide for recovery of that investment; it is basically to leave the investment there and allow it to serve shipping. Now, in terms of original cost dollars, that unrecovered investment at the end of 1976 was some 582 millions of dollars.

We have less than 25 years left in this century. So the mathematics, while I do not have a calculator handy, indicate some $25 million to $30 million per year additional required tolls. Now, based on economic studies and testimony here this morning, the prospects that you could raise tolls that much and still retain traffic appears questionable.

Also, you are going to have to increase tolls anyway to take care of operating cost increases in the future. So the prospects of investment recovery, even absent any increased compensation to Panama, and that of course is another question, is remote.

Mr. METCALFE. Governor Parfitt.

General PARFITT. There are several ways of looking at the unrecovered investment.

Mr. Kujawa mentioned the figure of $582 million being unrecovered on the books of the Panama Canal Company. GAO made a study some time ago in connection with auditing our books. They attempted to arrive at the figure of unrecovered investment of the United States, not just that on the Company books. Updated through 1976, they came up with a figure of $752 million. This includes many of the things Mr. Kujawa referred to in his opening statement, such as interest during construction and some annuity payments to Panama which are not included in the $582 million.

So you have to pick which of those figures you are going to try to recover. Figuring everything in, the United States is said to have an unrecovered investment of $752 million, exclusive of defense.

I share Mr. Kujawa's point of view that you would have to perhaps optimize tolls in order to recover that investment by the end of the century. It possibly could be accomplished. It depends upon projections of traffic and so forth. You would be in effect optimizing your toll rates and increasing them fairly substantially.

Mr. METCALFE. Thank you.

I recognize the gentleman from California, the former chairman of the Subcommittee on Panama, Mr. Leggett.

Mr. LEGGETT. Thank you very much, Mr. Chairman.

Governor Parfitt, welcome back to the committee, you and the other witnesses.

I guess these hearings today were scheduled on the issue of whether or not the Panama Canal was vital to the interests of the United States.

Miss Hayes, is the Panama Canal vital to the interests of the United States, yes or no?

Dr. HAYES. As I stated in my testimony, I do not think the Panama Canal is.

Mr. LEGGETT. Governor Parfitt?

General PARFITT. I think you have to put that question in the context of the overall interest of the United States Government. We are talking economics here.

Mr. LEGGETT. All right. In speaking of overall interests of the United States, is the Canal vital?

General PARFITT. I would have to bow to the defense experts on this issue.

Mr. LEGGETT. All right, you bow to the Department of Defense.

Mr. Gibbs, can you answer?

Dr. GIBBS. I agree with Governor Parfitt that I feel a qualification is necessary.

Mr. LEGGETT. You are not tongue-tied by the Department of Defense. Can you tell us whether or not the Canal is vital in your view?

Dr. GIBBS. In an economic sense?

Mr. LEGGETT. In any kind of a sense.

Dr. GIBBS. In any kind of a sense, my suspicion is that it is not.

Mr. LEGGETT. Okay.

How about you, Mr. Kujawa?

Mr. KUJAWA. My point of reference again is economic or financial. I think there are two ways to look at it, one is traffic growth in the future and the conclusion of everybody here this morning appears to be that there will not be much additional growth. The other, and this is a thorny one, is the economic value measured by how much of an increase in toll rates is possible. If you could increase tolls substantially, then it is worth a great deal; if you cannot increase them very much, then it is worth far less.

Panama maintains you could increase it many times over, and, if you follow that line of reasoning, it must be worth a great deal. The economic studies of the Panama Canal do not support this conslucion however.

I think I would conclude, just to answer your question in the yes or no kind of thing, Congressman, that the Panama Canal is not vital from an economic viewpoint; the Panama Canal is important.

Mr. LEGGETT. Considering the fact that say 80 percent of the Navy ships of the United States and perhaps merchant ships are constructed in the East and used in both oceans, and considering the fact that say 85, 90 percent of the ships of the world, both Navy and otherwise, can traverse it now, and considering the fact that sometimes you need to get from one point to another rather quickly witness the fact we are spending $6 billion on what we call a craft conversion program for the Navy and for the Air Force and witness the fact that 80 percent of all of the goods that got to Israel got there by ship in the first 30 days, contrary to some impressions, is speed of transit by sea of vital interest to the United States?

Mr. Kujawa?

Mr. KUJAWA. Again from an economic sense, generally not vital. You can pick out certain kinds of horror stories and conclude that it is vital but, looking at the long term, it is important but not vital.

Mr. LEGGETT. Well, the Suez Canal was closed for ten years. Do you consider that was a matter of vital importance to say Eastern Mediterranean countries or not, yes or no?

Mr. KUJAWA. No.

Mr. LEGGETT. Miss Hayes?

Dr. HAYES. The economies that suffered most from the closure of the Suez Canal were the Eastern African countries which lost trade with the European markets.

Mr. LEGGETT. Was that vital to them?

Dr. HAYES. Because they are smaller economies and less diversified economies, this was important to them. They continued to exist as economies and, therefore, to call that loss vital is perhaps stretching the point.

Mr. LEGGETT. All right. Let me ask you this: Is peace in this hemisphere vital to the United States?

Mr. Kujawa?

Mr. KUJAWA. I think we are getting a bit away from the economic-financial side of things.

Mr. LEGGETT. Yes. The thing is, we cannot make a decision here in a vacuum. We have to make a decision of course looking at the economics, and if economics affect peace, then you have to go ahead and broaden your horizons, do you not?

Now, consider the fact that you have said that, or rather I guess Mr. Gibbs has said, that the Canal is worth 4 or $5 billion, and also you have indicated a replacement value of a sea level canal of 5 to $6 billion, and you have indicated if you used a 7 percent amortization rate for a sea-level canal, which is higher than the rate we use for domestic investments of 6 3/8 plus, which is escalating all the time, you have to get back 350 to $450 million a year for interest. Now on a 50-year amortization that would be an extra $100 million for payoff on principal. All this is $500 million a year cost for a sea-level canal.

Normally the recipient of a gift values it at fair market value. I think Arthur D. Little or Arthur Andersen and Company does the same thing, that is, values something at market value at the time you get it.

Certainly anybody getting that Panama Canal might get the idea that it is worth 5 or $6 billion and that it is worth $500 million a year to reasonably amortize it, could they not, especially in view of the fact that indications have been made by the country of Panama, as leaked to the press, that they would like $200 million a year as a payment program? Let us also consider the fact that Panama would escalate tolls 2, 3, 400 percent, do you not think? Now given the values I mentioned, and considering the fact that we acquired the Isthmus at a time when we had seeds of war, would we be again sowing the seeds of war if we just looked at this matter in a short 23-year time frame?

Let the record show nobody said anything.

That is all the questions I have.

Mr. METCALFE. I recognize the gentleman from California, Mr. Dornan.

Mr. DORNAN. Dr. Hayes, what does CACI mean?

Dr. HAYES. Legally CACI stands for nothing. It formerly stood for Consolidated Analysis Centers, Incorporated, and prior to that for California Analysis Centers, Incorporated.

Mr. DORNAN. It started out as what is known as a California think tank?

Dr. HAYES. Right.

Mr. DORNAN. Funded by DOD or State Department?

Dr. HAYES. You mean when it was back in California?

Mr. DORNAN. Yes.

Dr. HAYES. Much of the work is done for commercial entities. Some of the contract work is done for the Department of Defense, other work for other agencies of the United States Government.

Mr. DORNAN. Do you get State Department funds?

Dr. HAYES. Yes. We are not right now receiving State Department funds.

Mr. DORNAN. What funds paid for your survey?

Dr. HAYES. Department of Defense funds.

Mr. DORNAN. DOD funds?

Dr. HAYES. Yes.

Mr. DORNAN. There is a little general information I would like to give for the panel and everyone in attendance. An admiral who has pretty incredible credentials as a patriot to this country told me he submitted a report recently in the spring on the critical nature of the Canal in transfering Pacific ships to the Atlantic Fleet in an emergency. He determined that it was vital—since that is a key word here, it comes from the Latin word "vita" or life—that life depended upon the immediate transfer of ships, and that it was rejected by higher people at the Pentagon because they said it was not in line with administration policy.

I get a feeling here today that there is an administrtive policy that has come down the line, and that everything has to be in synchronization with that policy.

I might add to our marine expert, Dr. Gibbs, that two days is critically important. If the Japanese carriers lagged two days behind the main force hitting Pearl Harbor, the Japanese might have given up their effort a lot earlier in the war. If General Patton's rescuing forces of those surrounded at Bastogne had been two days late, the German offensive at Ardennes would have succeeded and we would have had a whole new war on our hands in 1944. If our carriers had been two days late in Midway, we would have lost the war in the Pacific. Now I think that the Arab-Israeli situation is only one situation which shows that this Canal is vital in every sense of the word as a strategic waterway.

I would like to ask when, Dr. Hayes, you prepared your statement for this hearing this morning?

Dr. HAYES. Last week.

Mr. DORNAN. Last week.

When were you told, Governor Parfitt, that you would be coming up here?

General PARFITT. The first indication was by phone on July 1, 1977. Written notice with specific questions was received on July 12, 1977.

Mr. DORNAN. Mr. Gibbs?

Dr. GIBBS. I believe I knew that I would be coming about ten days ago.

Mr. DORNAN. Mr. Kujawa?

Mr. KUJAWA. Over two weeks ago.

Mr. DORNAN. I would like an opinion from each of you on the President's discussion of the building a new canal in an unnamed country. If I could prologue your answers by reminding you of the Canal Zone press conference, and the statement by Congressman Neal Smith of Iowa. He said he did not believe the negotiations were moving forward in good faith on the Panamanian side, and he said he thought we should consider a third country sea level canal. At that, the press and the embassy—to use the vernacular—went bananas.

Could you each comment on your reaction, while you were preparing your statements, to the President's suggestion of a sea-level canal and how viable you think that suggestion is? He has really opened up a whole new area by discussing that publicly as the head of State of this nation which owns the Canal?

Dr. Hayes, would you go first.?

Dr. HAYES. My analyses of the future trade that is likely to use a Central American canal does not indicate that a sea level canal would be an economical undertaking at this time.

Mr. DORNAN. Why do you think the President brought it up then?

Dr. HAYES. I am afraid I do not claim to understand all of the President's motives in bringing up the subject of a sea level canal.

Mr. DORNAN. Did it surprise you in that you were preparing a statement to discuss before a congressional committee?

Mr. METCALFE. Dr. Hayes, would you use the mike, please?

Dr. HAYES. I am sorry.

I was aware that there was discussion of a sea level canal just as there was discussion of a sea level canal during the 1960s when we were in earlier treaty negotiations.

Mr. DORNAN. Governor Parfitt, in going over the press briefings after our departure in February in the Canal, were you aware it was Congressman Neal Smith who made a statement about a sea level canal in another country that really caused the controversy?

General PARFITT. I was aware of that incident.

Mr. DORNAN. Were you surprised at the President—

General PARFITT. I was surprised to hear the President discuss a sea level canal, although the President of the United States has had the recommendations of the Interoceanic Canal Commission since 1970, recommending a sea level canal be built.

Mr. DORNAN. When did you come up for this appearance?

General PARFITT. I came up on Wednesday and I heard the President's meeting at Yazoo on television here.

Mr. DORNAN. Have you had a chance to be briefed by your people in the Canal Zone or get a State Department briefing here about the press impact in Central and South America?

General PARFITT. I have not, sir.

Mr. DORNAN. Were you surprised, Mr. Kujawa?

Mr. KUJAWA. Yes, I was. I participated in the studies of the Interoceanic Canal Commission study that concluded their work in 1970, and that work concluded that a new canal was an uneconomic undertaking. Construction cost increases since that time have made it even more uneconomic.

In my testimony here this morning I summarized it by saying that a new canal or an improvement of the existing canal to a substantial degree based on present traffic forecasts is an economic fantasy. This is my conclusion.

Mr. DORNAN. Do you think the President thinks of it as an economic fantasy? He must have had in-depth briefings in this whole area. He knows that it is a potential political bombshell that is facing him. He is probably the most astute politician in the White House since Franklin Roosevelt. He knows Governor Ronald Reagan carried Texas, to the last delegate, on this one issue in the 1976 presidential campaign.

Do you think he had some specific reason for bringing up something that you consider an economic fantasy?

Mr. KUJAWA. Of course his motives are unknown to me. I read his statement in this morning's papers. He indicated that his thoughts were, I recall the exact word, conjectural. My impression was that he had not given it a thorough review and was just indicating some off-the-cuff kind of comments.

Mr. DORNAN. Dr. Gibbs, did this surprise you?

Dr. GIBBS. Yes, sir, it did surprise me.

Obviously the President—well, I should not say obviously, but I presume it would be possible to build a sea level canal, it would be very costly. I believe all of us on the panel here concur in that. Trying to fathom the motives for this, of course, is really impossible, but presumably economics was being traded off in his mind against other accomplishments, presumably another dimension, national security, foreign relations.

Now his judgment of course was—there is no way to know precisely what kind of trade-offs he foresaw. But I presume that it must be the accomplishments in these other dimensions which he had strongly in mind, it could not have been economics.

Mr. DORNAN. As a marine expert, since the President has entered this subject into the world arena of discussions, I would like to ask you two questions.

The word "ecology" is about as household a word as any word has become in the last ten years. I can remember the first time I heard that word used in mass media; it came out of the mouth of Walter Cronkite. It made an impression on me because I remember it. He was using it in reference to the Panama Canal over a decade ago. He said that the opening up of the Panama Canal had allowed some marine life forms to transit the Canal, I cannot remember in which direction, but that it has caused a disruption of the eco-balance, the ecology in the area was endangered somehow.

Did something like that happen when the Canal was first opened at the beginning of this century, and do you foresee a marine eco-imbalance with the sea level canal similar to that?

Dr. GIBBS. Well, I am not especially knowledgeable about marine biology but, as I recall, some people have commented upon the severe disruption that the very large constructions had on the land ecology in Central America, but that those disruptions now are largely overgrown.

In regard to the impact on the marine eco-system, I have not the faintest idea and I doubt if any marine biologist who is a real

scholar and professional would stick his neck out and say that a significant change had occurred because we simply do not have the historical information.

Mr. DORNAN. You don't know what Walter Cronkite was referring to about some life form—

Dr. GIBBS. No.

Mr. DORNAN. Something about no more eels went through and that aided shrimp——

Dr. GIBBS. There is concern about a sea level canal now for that reason. My suspicion is that—I have to qualify this because I am not a marine biologist, but my suspicion is that little impact on the marine environment occurred from opening up the Panama Canal, because it is a fresh-water canal and marine organisms with their preference for salt water would have a very difficult time getting through.

Mr. DORNAN. Right, which would not pertain to a sea level canal?

Dr. GIBBS. Right.

Mr. DORNAN. The other one is a tidal problem. I understand there is a great tidal imbalance from the Atlantic-Pacific side, and there is controversy between marine engineers as to how this could be neutralized, particularly using Nicaragua, which has this large natural lake. Is there some tidal problem that could just not be overcome, in your estimation?

Dr. GIBBS. Well, if you throw enough money at a problem, you can usually solve it. In terms of specific engineering designs that we have available now, I am not sure that we do have that available to us, but all of this is based on a 1970 interoceanic study that is getting a little out of date now, but as of that time I believe the engineers were a little wary about dealing with the tidal problem for a sea-level canal across the Republic of Panama.

Mr. DORNAN. Governor Parfitt, the President, as you recall, did not just shoot from the hip, as the expression goes. It seems like he had given this thought. He mentioned the exact billion-dollar cost figure for the Alaska pipeline, the billion-dollar figure for what it would cost to build a new gas Line across the U.S., and then put a multi-billion-dollar figure for a sea level canal up against those two other multi-billion-dollar projects and seemed to feel, at least in my mind, that it was a credible proposition.

Has anyone from the State Department had any discussions with you, or through our embassy people to you, about softening up the Panamanian position or getting them to pay a little attention to how difficult this is by discussing with them a sea level canal in another country?

General PARFITT. No, sir, I have had no discussion of that type.

I would like to correct a previous statement I made with regard to the character of the Inter Oceanic Canal Commission recommendation. I stated they recommended the construction, and that was not my intent. They said that if you are going to accommodate increasing traffic by the end of the century, that the preferred solution to a third lock was a sea level canal built ten miles west of the existing canal, and that this proposition should be reviewed when the rights and obligations of the U.S. under new treaties with Panama are determined. They did not recommend specifically that a sea level canal be built.

Mr. DORNAN. You said there had been ten survey areas in the Panamanian area after looking at Nicaragua and others.

General PARFITT. Yes, I forget the exact number, but Route 10 is the number of the preferred route. It was estimated to cost about $2.9 billion at that time. We have escalated this cost using regular escalation factors, and estimates now, if they are correct, would require an expenditure of about $5.3 billion.

Mr. BOWEN. Would the gentleman from California yield?

Mr. DORNAN. Yes.

Mr. BOWEN. I apologize, but I have a bill on the floor, and if I could ask one or two questions, I would appreciate it.

I just want to say to General Parfitt, without any disrespect for his distinguished predecessors that I cannot imagine anybody better suited than he is for the responsibilities entrusted to him, and I have made that statement on two occasions. The gentleman has done an outstanding job.

There is a question of a military character that perhaps should be addressed later but keeps coming up again and again. The point is made that the Canal is not defensible, that all it takes is a hand grenade in the right place, or something to that effect, to disrupt the Canal and, therefore, it is pointless for us to try to continue to operate it if there is any hostile attitude on the part of Panamanians or anybody else.

How would you comment on this military argument that it is not really defensible and that it is futile to talk about defending it?

General PARFITT. I think this arises from the fact that a facility as long and open as the Panama Canal is vulnerable to sabotage. But I would say that vulnerability existed from the time of its construction, and it is no worse today than it was when constructed. We had that same potential problem during World War II, and we were adequately able to cope with it.

Mr. BOWEN. Of course the last thing in the world the Panamanians want is the closing of the Canal.

General PARFITT. It is true that Panama would probably suffer worse from a closing of the Canal; therefore, one finds it very hard to envision their doing something which would adversely impact on its efficient operation. Nevertheless, one can't rule out the potential of an unstable act by party or parties unknown, and we have to be apprehensive about that.

Mr. BOWEN. Do you believe the American military forces are capable of defending the Canal in the sense that I mentioned?

General PARFITT. Well, certainly there is no 100 percent guarantee of defending the Canal. It is vulnerable in many places, and sabotage of an extensive nature could result in its putting it out of action for some period of time. That is always a possibility. We have had to face it in the past and will have to face it in the future.

Mr. BOWEN. I would like to ask one further question of either Mr. Gibbs or any other panel member. In terms of measuring the economic impact of the Canal, if we reduce that to maybe one question, I would ask what would be the inflationary impact on the American economy if the Canal were closed and all the shipping had to go around the Cape, or via some other method of transportation. How could you measure the inflationary impact on the American economy?

Dr. GIBBS. In terms of the aggregate economy, I doubt it would even appear. $500 million in the first year relative to the figure that Dr. Hayes quoted, was it $1.4 trillion now for the Gross National Product, I don't think you could detect that.

Mr. BOWEN. Would anybody else on the panel like to comment on the inflationary impact of the longer route, higher charges and higher cost of delivery in the area of any particular commodity? Would it impact severely?

Dr. HAYES. I think I agree with Dr. Gibbs.

Mr. KUJAWA. I think one has to distinguish between the short-term effect and long-term effects. In the short term, the effects could be disruptive. Again, I can't say vital, but if there was a sudden closure, the short-term effects could be significant.

In the longer term, I have confidence in our ingenuity to accommodate it and go from there. So the main problem or the most vital interest of the U.S. in the Panama Canal tends to be more short-term than long-term.

Mr. BOWEN. I thank the gentleman.

Mr. DORNAN. Before he goes, I want him to hear the answer to a follow-up question I will ask.

Any current danger to the Canal would still exist under new landlordship; isn't that correct? Whatever government takes over, the Canal has this same problem, given the instability of some South American governments. One sure way to bring down a government in Panama, if it had total control of the Canal, would be to bomb a lock on the Canal and turn to the head of the state and say, "Look what you wrought. You have had the Canal one week and it is closed down."

Do you believe a government could sustain itself in Panama if it lost the ability of the Canal to operate, Governor Parfitt?

General PARFITT. No, I don't think so. But in a broader answer to that question, I believe the construction of the administration is that the danger of a mass attack or an organized attack is less than the danger of a sabotage situation. And the sabotage situation is more likely to be experienced with an unfriendly Panamanian Government than with a friendly Panamanian Government. Therefore, this is the highest risk—that either a Panamanian Government would stand aside, or, in the extreme, because of some feeling of dissatisfaction with the U.S., became involved in some type of sabotage or disruptive activity.

Mr. DORNAN. What about a Panamanian Government with forces in the country that did not agree with the government in control, and they had the responsibility of security? In other words, can not the United States of America defend the canal against an unfriendly Panamanian Government far more easily than a small Panamanian force can defend itself against some counter force that wanted to bring the government down?

General PARFITT. In answer to that specific question, yes.

Mr. DORNAN. Then all this talk about sabotaging the Canal to me is meaningless, using common sense, because the same thing would pertain with whatever government is running that Canal, and the security would be greatly inferior, given the excellent security I saw provided down there by our government.

Are any of you aware of the Alaskan oil situation, where Sohio has purchased Texas gas line rights up to the California border? It appears now, and is debatable, that California may not allow transit of this sour crude oil from its ports to that Texas line and hence to refiners in the Gulf Coast area. Moreover, California refineries cannot handle this sour crude oil, and that means the Alaskan crude would have to use the Canal Zone quite extensively during the next two decades.

Are you aware of this problem of transiting crude oil from Alaska to the Canal?

General PARFITT. Yes, the original estimates were that with the pipeline capacity of 1.2 million barrels per day, that the refining capacity in the West Coast was about 600,000 barrels per day .

Mr. DORNAN. Less than half?

General PARFITT. Roughly half, and that some alternate means of moving that oil had to be found. That is roughly 500,000 or 600,000 barrels per day. There were some schemes considered which had to do with a tradeoff with Japan. I understand the President turned those down the other day, which leaves the alternatives of going through the Panama Canal, going around the Horn, or using one of the alternative pipeline schemes, and there are several.

My information is that the pipeline schemes are hung up on environmental grounds, as you suggested, and that even if cleared on environmental grounds, they would require somewhere in the order of a minimum of 18 months to modify and get them ready for operation. So in the interim period it seems quite likely that the oil will flow through the Panama Canal. Recent estimates have reduced the quantities I mentioned substantially, because of the disruption to Pumping Station No. 8, and our current projections are rather than the 500,000 barrels roughly a day going through the Panama Canal in the short term, it would be more like 200,000 barrels a day. That is in the short term.

In the longer term, when Pumping Station No. 8 is repaired, we think we will be back up again to a potential 500,000 barrels a day. Somewhere between one and three ships a day will be the additional traffic you will attain in the Panama Canal, which will be a profitable business for us. However, we still feel, since the pipeline solution seems to be preferred on economical grounds, that there will be some resolution of their problems, and at the moment for our planning purposes are not considering that the flow of oil through the Panama Canal will continue for a long duration. We are thinking it is a short term situation.

Mr. DORNAN. And as for defense considerations, it might be better, but when we see the one explosion that took place in Alaska, it is indefensible as the Canal, itself, if not more so?

General PARFITT. Exactly.

Mr. DORNAN. May I remind the panel that President Johnson, President Nixon, and President Ford all used this Latin root word, vita, vital, in their discussions of how important it was to get Prudhoe oil down here and stop the dependence on the instability of Middleastern oil?

I would like to close by asking each of you a question. Because I get the impression sometimes, hearing how nonvital the Canal is,

and the Suez, that it was ridiculous to build the canals in the first place, what do we need them for if they are so unimportant?

Please give me your best and most honest answer. Let me start with you, Governor Parfitt, and the other three have the advantage of following your answer, do you think the U.S., if it were offered in the year 1977, in perpetuity rights of the real estate surrounding the isthmus area, to build a canal, would proceed to take on this undertaking today if it had never been done before in history?

General PARFITT. I am not sure I understand the scenario. It is that we have rights in perpetuity to build it but have not done so?

Mr. DORNAN. Do you think that economically we would move to build a canal today if we were offered that opportunity by this small country and offered, in perpetuity, rights to do it?

General PARFITT. On pure economic grounds, no.

Mr. DORNAN. Mrs. Hayes.

Dr. HAYES. I must concur with that. I think our transportation infrastructure would be so determined by the fact we had not relied on the Canal previously, and that it had not been available, that we would have no need for such a canal.

Mr. DORNAN. Do you think Panama, itself, would attempt to borrow money from World Bank or other world banking sources to build the canal, itself?

Dr. HAYES. Again, I suspect the international trade would be such that that canal would not appear to offer immediate economic benefits. The distribution of trade would be different than now.

Mr. DORNAN. Would you concur in that, that they would not be able to afford it?

General PARFITT. It certainly would not be a viable economic project, so, therefore, anyone would probably have a difficult time getting funding to finance that kind of project.

Mr. DORNAN. Why is the Suez Canal in such a different position, General Parfitt, given the anxiousness of the world to get that canal reopened after it had sat there idle for a decade?

General PARFITT. I really don't know too much about the Suez situation. I suspect it is quite important from the standpoint of the economy of Egypt and the investment required to reopen was not in the magnitude we are talking about for building a canal across the Isthmus of Panama.

Mr. DORNAN. If it had not been dredged to begin with, do you think world trade routes would have adjusted by this time and it would be economically unfeasible to open up a Suez Canal?

General PARFITT. I am not sure about the Suez Canal.

Mr. DORNAN. Would you agree, Mr. Kujawa?

Mr. KUJAWA. The Suez Canal is in a different geographical environment; is different financially in terms of construction costs; and is different in terms of what service it gives to world shipping. The service that a canal renders is a short-cut for a ship in going from point A to point B. The short-cut provided by the Suez Canal is economically more valuable than that provided by the Panama Canal as an accident of geography. But the construction cost of the Panama far exceeded the construction cost of the Suez, and it is more complex. So the Suez is a more economic proposition.

Mr. DORNAN. Suppose the Canal were offered to us at 1903 costs, that we would be able to open it up at the cost that it was opened up in 1903? Do you think, given both the military and economic situations, we would built it now?

Dr. GIBBS. If we had reasonable relationships with our neighboring countries, and if it were possible to build it with the inexpensive labor which was available at that time, which is not available now, it might remotely be economically feasible to do it, but I have to hedge on this. I think Dr. Hayes pointed that in 1977 if we had progressed from 1903 to now, and not had a canal, that we would see a considerably different arrangement of our transportation system, that new arrangements would be in place, would be functioning, and would be charging rates attractive to business. A new facility at Panama would have to compete with this different infrastructure, and it would be a nip-and-tuck thing whether it could make money or not.

Mr. DORNAN. Well, the point of my asking the question was simply this: I believe if we were offered the Canal at 1903 dollars to build it for military reasons alone, we would proceed, but for also economic reasons, granted that we would have a different rail structure, different types of ships, that we would have learned to live without it, that we would rush to build the Canal at that cost.

There are many things we have in the world that we could not afford to build again. Los Angeles is competing for the Olympic Games and would not be able to without the facilities and hotels that were built for the 1932 games. I think because we do have the Canal now, it is incredible to force our reasoning into such a position that we are going to write it off as though it does not have any impact on world trade. There are all sorts of ways we would work around the Canal, if destroyed. But the fact we have it and can protect it and would give it up to an unstable government, I think requires a lot of mental gymnastics, some of which I think I have seen here today. Thank you very much.

Mr. METCALFE. I would like to raise one question which is a follow-on to the question that the gentleman from California just raised. Recognizing that in 1903 the Canal was built for ships of a particular size, and that subsequent, of course, to that time, the ships have increased their size, and our war vessels have increased their size, and, therefore, many of them cannot transit the Canal, is it not like comparing Ford building present automobiles with the four cylinder autos they once built. I think the question logically would be, would we build a 4-cylinder Ford today with the same knowledge we have and with all the other technical knowledge? I think if the question is going to be effectively answered, we have to answer it in terms of what are the needs of the Canal right now. Certainly it would seem to me that it would be proper, if anyone considered building a canal today, that they would build it sufficiently wide enough and large enough to transport the larger vessels so they wouldn't have to go around the Cape in order to be able to transport the goods that they have.

I think we have to talk in terms of what the conditions are today. And I raise the same question for the record that Congressman Dornan was raising. To paraphrase it and change it somewhat, if

this was 1903, and now we are talking about 1977, would they build a canal purposefully they knew could not handle all of the vessels?

General PARFITT. I think you have to put that in proper context. I believe the designers in 1903 did a fabulous job, and the situation today isn't quite that which is presented by many people. Ninety-two percent of all the ships in the world fleet, ninety-six percent of the U.S. commercial fleet, and 98 percent of the U.S. Naval ships can go through. So we are talking about a very small percentage of ships that cannot use the current Canal, which I think speaks very highly of the designers.

Certainly if we were building it today, we might build it somewhat bigger, but not necessarily big enough, if you are going to build a lock canal, to accommodate all the ships that could possibly be foreseen to be built.

Mr. KUJAWA. I concur in that, Mr. Chairman. The economies of a canal are such that they generally are negative to the large ship sizes, so each additional foot of draft for a canal comes at a larger investment. In hindsight, the Panama Canal was a marvelous economic achievement, as well as engineering feat. Those who planned it back in 1903 did a terrific job, and I think, in response to Congressman Dornan's comments, the question of whether the Canal would be built today, is somewhat of an unfair test of the importance of the Canal. I think it was properly built when it was built, and in hindsight it has served Commerce over a long period of time and has done a marvelous job of doing it, and the horizon is that it can continue to reader an important service through the remainder of this century.

Mr. DORNAN. Could I ask one final question?

Mr. METCALFE. If you will take only one minute, because we are behind schedule.

Mr. DORNAN. One thing I have been confused about, particularly when you hear the severe criticizm of how we have abused people in the Canal Zone area: Have we really operated the Canal as a world trade resource, and have we really been munificent here, and if we were to charge tolls to run it as a free enterprise profit-making concern, what could we raise the tolls to? What kind of profit could be extracted out of that by the United States of America, and I anticipate whatever your answer is that it will be exactly what Panama will do the day after it takes over that canal, if it does.

Could you go first, Mr. Kujawa?

Mr. KUJAWA. The last detailed study of the revenue potential of the Panama Canal, which was issued early in 1975, was based on facts existing before the Canal raised tolls for the first time in its history. At that point in time, based on the information then available, it indicated that tolls could be raised approximately 75 percent without negative impacts over the long term.

The Canal, in order to cover cost increases in the last three years, has raised tolls 50 percent. So some portion of that ability to raise tolls has been eaten up by the need to increase tolls to cover costs. Of course, you have had, since that time, changes of facts in terms of traffic, changes in price levels, due to inflation, so the answer is not exactly clear, but the ability to raise tolls over and above current levels based on that study are not very bright.

Mr. DORNAN. Thank you, Mr. Chairman.

Mr. METCALFE. Thank you very much.

In the interest of time I ask unanimous consent that any member of this subcommittee be permitted to submit questions to each member of the panel in writing and ask that you reply to those questions. Hearing no objection, it is so ordered.

[The questions and answers may be found at the end of these hearings.]

Mr. METCALFE. I would like to thank the panel for its testimony and for the presentations which you have given us. We thank all of you for coming and sharing this time and your knowledge with us. Thank you very much.

On Panel II on the economic subject area we have Mr. Howard F. Casey, Deputy Assistant Secretary for Maritime Affairs, U. S. Department of Commerce; Mr. James J. Reynolds, American Institute of Merchant Shipping; and Mr. James W. Boone, Director of the Office of Rail Economics Operation, Federal Railroad Administration, U. S. Department of Transportation.

Would those members please come forward and identify themselves?

PANEL II - ECONOMIC: STATEMENTS OF HOWARD F. CASEY, DEPUTY ASSISTANT SECRETARY FOR MARITIME AFFAIRS, U.S. DEPARTMENT OF COMMERCE; JAMES J. REYNOLDS, AMERICAN INSTITUTE OF MERCHANT SHIPPING; AND JAMES W. BOONE, DIRECTOR OF THE OFFICE OF RAIL ECONOMICS OPERATION, FEDERAL RAILROAD ADMINISTRATION, U. S. DEPARTMENT OF TRANSPORTATION

Mr. METCALFE. Mr. Casey, would you start off?

STATEMENT OF HOWARD F. CASEY

Mr. CASEY. Thank you, Mr. Chairman.

Mr. Chairman, I am Howard F. Casey, Deputy Assistant Secretary of Commerce for Maritime Affairs.

Should I proceed with my statement?

Mr. METCALFE. If you would summarize it and then I will ask unanimous consent that the entire statement will be entered into the record. That would apply also to the other two panelists. Hearing no objection to my request at this point,the entire statement will be entered into the record.

Mr. CASEY. Mr. Chairman, my statement is rather brief.

Mr. METCALFE. Proceed.

[Mr. Casey read the following statement:]

STATEMENT OF HOWARD F. CASEY

I appreciate this opportunity to appear before this subcommittee on behalf of the Department of Commerce and the Maritime Administration to present our views on the vital economic interests of the United States in the Panama Canal and the Canal Zone during the last quarter of this century.

These remarks will only touch briefly upon our concerns regarding each of the fourteen questions posed by the subcommittee on the subject of vital economic interest. I have also had more detailed responses prepared for each question and, with your permission, Mr. Chairman, I would like to have this material made a part of the record.

The economic benefits provided by the operation of the Panama Canal are so extensive, it is difficult to quantify properly the actual economic value which the Canal holds for the U.S. or the world. The beneficiaries of the Canal's operation are more easily identified and would include those nations whose trade has been stimulated by the advantages arising from use of the Canal; the producers of commodities moving through the waterway, who achieve lower transportation costs and expanded markets; the consumers of these goods, who will pay lower prices; and the shipping industry, which can achieve increased laydown capabilities.

Rather than discussing such broad issues when witnesses like Governor Parfitt are present, my testimony today will focus primarily upon how the Canal affects the U.S. and world maritime industries.

It is obvious that the geographical characteristics of the Canal present significant advantages to vessels in terms of time, distance, fuel reduction, and net delivery capabilities, also referred to as laydown capabilities. In the table attached to my testimony, these savings have been illustrated for three representative trade routes to the U.S. Gulf Coast from Indonesia; Valdez, Alaska; and El Segundo, California. For a vessel using the Canal, the table demonstrates that the savings in time and distance, which consequently result in a reduction in fuel, significantly range from 28% to 67% in contrast to a vessel that goes around Cape Horn.

The Canal also affords an important safety advantage. To the extent merchant ships can escape the hazardous waters of Cape Horn, they can lessen the risk of collisions and groundings and, in some cases, benefit from reduced insurance premiums. This advantage is particularly significant for oil tankers, in light of the continuing concern caused by last winter's rash of tanker accidents.

It is an unmistakable conclusion that the U.S.-flag merchant fleet, as well as the world fleet, rely substantially on the Canal. Ninety-six percent of all U.S.-flag merchant vessels and 93% of the world fleet can pass through the Canal's locks.

In addition, 98% of all U.S. Navy vessels can transit the waterway. In FY 1976, over 12,000 transits were made through the Canal by vessels flying the flags of 65 nations. U.S.-flag vessels made almost 1,000 of these transits. Moreover, of approximately 117 million tons of commercial cargo transported through the Canal in FY 1976, 78 million originated in or were destined for the United States in both the foreign and intercoastal trades. This represents about 12% of the total U.S. waterborne trade.

The reduced shipping time that the Canal makes possible for the shipment of both commercial and national security related cargoes between our East and West coasts has resulted in significant reductions in the cost of intercoastal shipments and the size of the U.S. merchant fleet required to carry these cargoes. In the absence of a canal, the increased costs and shipment times resulting from the adoption of alternative transportation modes would undoubtedly cause countless U.S. and foreign markets to face serious economic hardship. For example, the coffee industry on the West Coast of South America ships its product to the East Coast of the U.S. via the Canal. If the producers had to ship their coffee to the U.S. via Cape Horn, they would probably be priced out of the market because their additional transportation costs would place them at a serious competitive disadvantage with respect to producers East of the Canal.

We believe that the benefits accruing to the U.S. from

the use of the Canal will be substantial through the remainder of this century. Even though the U.S. and world economies are expected to continue to recover and expand, the Canal capacity is expected to remain adequate through the year 2000. This anticipated increase in traffic will include not only crude oil from Alaska's North Slope and Indonesia but also from other sources as yet undiscovered.

Concerning the value of the Canal to countries other than the U.S., International Research Associates, a private consulting firm under contract to the Panama Canal Company, has completed a seven volume study of the effects of toll rate increases on the economies of the U.S., Oceania, Europe, South America, the Far East, Canada and the Caribbean Region, and Central America, Mexico and Panama. The study's detailed analysis concerning the value of the Canal to countries other than the U.S. cannot be duplicated here, but several observations can be made. Developing nations rely much more heavily upon trade for their economic life than do industrialized, advanced economies. In addition, it is a fact that many of the nations in the areas of the world mentioned above use the Canal extensively in developing their trade. In 1974, approximately 73 percent of Ecuador's imports and exports transited the Canal. In the same year, almost half of Peru's tonnage passed through the Canal. In general, it is safe to say that most Central American and West Coast South American countries rely heavily on the Canal.

Because the services offered by the Panama Canal Company are priced at cost, the value of the services accrues not to the Canal as profit, but to the user and consumer as savings. The benefit of these savings inure to shippers, buyers, and carriers of all nations that use the Canal. On the basis of the total of these savings, it is estimated that the United States benefits to the extent of approximately one-third, with Japan and Canada receiving 19 and 5 percent, respectively, In our opinion, it is obvious that the benefits accruing to other user nations is substantial by any measure.

Of great concern to the Maritime Administration are certain factors which could destroy for the U.S. and world merchant fleets the present cost-effectiveness of Canal use. However, obsolescence of the Canal is not one of these for the following reasons. The Panama Canal Company has performed its maintenance functions in a laudatory fashion and, if they continue to do so, the Canal is expected to provide efficient service through the remainder of the century without substantial capital investments. The Canal, in its present state, permits transit of vessels 39.6 feet deep, 950 feet long and 106 feet wide. A proposed third lock would expand the maximum length of the locks to 1200 to 1500 feet and the width to 140 feet. While it is true that about 7 percent of the world's merchant vessels

and 4 percent of all U.S.-flag vessels cannot transit the Canal due to size limitations, it should be pointed out that virtually all of this ineligible tonnage was designed for trades which would not include Canal transit. We believe that the currently planned maintenance schedule, which includes provisions for the deepening of the channel to increase the water supply, and the straightening of some curves, will assure continued economic life through the remainder of this century.

Currently, the Panama Canal is operating well below capacity with between 12,000 and 13,000 transits per year by commercial oceangoing vessels with a minimum of 20,000 to 22,000 possible transits per year. The Maritime Administration estimates that the peak Canal transportation of North Slope oil will result in only about 700 additional transits per year in 1982. Moreover, the Panama Canal Company does not expect 100% capacity utilization of its present facilities before the turn of the century. Nor does it appear that queuing or delays in transit time will pose problems for Canal users. In the event that queuing or economic obsolescence does become a problem, the Canal Company estimates that about ten to 12 years would be needed to construct a third lock which would enable the handling of larger vessels as well as an increase in the number of transits per year.

The Maritime Administration is concerned, however, with two other factors which could destroy the present cost-effectiveness of Canal use. The Panama Canal Company estimates that 52,000,000 gallons of fresh water is required for each vessel transiting the Canal. During dry periods, the supply of this water for Canal use has become a concern. In fact, at the present time, the maximum allowable draft through the Canal has been reduced by about two feet due to water shortage. MarAd is hopeful that the deepening of the channel, which must be accomplished to alleviate this problem, takes place as expected.

The issue with which this agency and the entire merchant fleet is most concerned relates to the future toll structure.

A May 1977 article in Distribution Worldwide noted that the competition which the maritime industry faces from the land-bridge is substantial. Fifty-one percent of all cargoes entering and exiting through U.S. pacific ports now move by land-bridge systems.

If the Canal lost its cost-effectiveness for the merchant fleet because of toll hikes, the fleet would then be forced to resort to other alternatives. For example, increasing shares of the ocean-going commerce would be moved on various forms of land-bridge systems. At the present time, however, more land-bridge facilities exist for breakbulk commodities

than for bulk cargoes. Going around Cape Horn would be another alternative, but one which poses substantial increases in time, distances, and risks while, at the same time, drastically reducing the laydown capabilities of vessel owners. Where such a reduction in delivery capabilities occurs for U.S.-flag vessels, especially those which have been using the Panama Canal regularly, a proportional reduction, and probable short fall, will occur in the critical revenues necessary to cover the vessel owner's capital costs. Moreover, where oversized foreign-flag ships are free to compete with U.S.-flag vessels, many U.S.-flag operators could face financial disaster since their ships were not designed for the navigation of the Cape.

Despite the deficits which were experienced in FY 1975 and 1976, operations for the current fiscal year are expected to run close to breakeven.

The trend evidenced by fiscal year 1977's operations and the opinions voiced by representatives of the Panama Canal Company to MarAd demonstrate that further increases will not be necessary if the world economy, and therefore world trade, continues to improve.

The probability to taxpayer subsidy for Canal operations appears slight in view of the fact that over its entire history,

the President has never allowed the Canal's financial situation to deteriorate to the point where Congress had to approve subsidies. On the two occasions that the Canal appeared to be in financial distress, both since 1973, the President has granted toll hikes.

The Maritime Administration believes that so long as the Canal is able to make its toll structure attractive to Canal users, its economic life will be secure.

Mr. Chairman, this concludes my testimony.

Attachment

Panama Canal Distance Advantages for Representative Routes

	Nautical Distance			Steaming Days @ 16 kts.		
Trade	Via Canal	Via Cape	% Savings	Via Canal	Via Cape	% Savings
Indonesia to U.S. Gulf	12,444	17,183	28	32.4	44.8	28
Valdez to U.S. Gulf	6,806	15,843	57	17.7	41.3	57
El Segundo to U.S. Gulf	4,495	13,540	67	11.7	35.3	67

Mr. METCALFE. The recessed hearing of the Subcommittee on the Panama Canal will come to order.

I ask unanimous consent that I insert into the record a statement by the President of the United States.

Hearing no objection, it will be so ordered and will be entered into the record.

[The statement referred to follows:]

QUESTION: Hello, Mr. President. I am Jeff Davis.

My question is, with the Republic of Panama asking for complete control of the Panama Canal, do you feel it would be a mistake to grant their demand, and do you think that the Panama Canal Zone would be a vital base in case of a third world war, as Cuba is a threat to our Southern States?

THE PRESIDENT: Fine.

In 1903 to 1907, our country worked out with Panama an arrangement to acquire control of the Panama Canal Zone and, of course, we have built the Panama Canal. The treaty said that Panama retained sovereignty over the Panama Canal Zone; that we had control over the Panama Canal Zone as though we had sovereignty. So even in the time of Theodore Roosevelt the agreement was that we and the Panamanians both in effect have sovereignty over the Panama Canal Zone. They have legal sovereignty. We control it; to operate after the building of the Panama Canal itself.

My hope is that we can sign a treaty with Panama to share with them from now until the year 2000 the operation of the Panama Canal itself and to continue after the year 2000 an adequate authority to protect the Panama Canal, to keep it open for international use, giving our own warship priority along with those of Panama in the use of the Canal.

My guess is that before many more years go by we might very well need a new canal, one at sea level, that can handle very large ships. This was studied when Lyndon Johnson was President, and the cost of it was very high, several billions of dollars. Since then we have seen a much greater need for the Canal.

We are now looking for a way to get Alaskan oil and gas to the central part and the Eastern seaboard of the United States. The large ships that bring the oil down fro

Panama can't go through the Canal. If they bring oil, they come down to the Panama area, off-flow the oil into small ships, the small ships go through the Panama Canal, and bring the oil up to the Gulf Coast to the Eastern Coast. 201

On natural gas, when it does come, it will be liquified at a very, very low temperature, put in large ships and brought down perhaps to the Panama Canal itself. There is no way to change it back into gas, send it across Panama and reliquify it. It costs too much.

So in the future I would say that we will need a sea level Panama Canal that can handle our large warships and the large tankers and freighters that are part of the international commerce now.

So I think we ought to keep good relations with Panama. We can prevent an attack on the Panama Canal by a foreign government. It would be almost impossible to prevent the disruption or closing of the Panama Canal by sabotage if the Panamanians were determined to put it out of commission. So it is important for us to work with Panama and not against Panama.

So to summarize, between now and the year 2000, we will retain under the proposed treaty our control, partial sovereignty with Panama having sovereignty as well. This is derived from 1907. After the year 2000, we will give up the actual operation of the Canal to Panama, but retain the right to defend it with our armed forces and to keep it open with first priority given to American warships and Panamanian warships to use it.

I don't know what the treaty terms might be, but that is the best report that I can give you right now.

Thank you.

Mr. METCALFE. Now we will hear from Mr. Boone. If you will, please, Mr. Boone.

STATEMENT OF MR. JAMES W. BOONE

Mr. BOONE. Thank you, Mr. Chairman.
[The following statement was read by Mr. Boone:]

STATEMENT OF JAMES W. BOONE, DIRECTOR, OFFICE OF RAIL ECONOMICS AND OPERATIONS, FEDERAL RAILROAD ADMINISTRATION, DEPARTMENT OF TRANSPORTATION, BEFORE THE PANAMA CANAL SUBCOMMITTEE OF THE HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES, REGARDING U.S. ECONOMIC INTERESTS IN THE PANAMA CANAL AND CANAL ZONE, MONDAY, JULY 25, 1977.

Mr. Chairman and Members of the Subcommittee:

I am James W. Boone, Director of the Federal Railroad Administration's Office of Rail Economics and Operations. I am pleased to be here today to present the Department's views on the capability of America's railroad industry, as it may relate to the economic interests of the United States in the Panama Canal during the next several decades. My office is responsible for the analysis of the railroad industry's operational capacity and the economics of such operations, with particular emphasis upon competitive posture and marketing capability.

My remarks will be directed toward our assessment of the operational feasibility of a partial or complete substitution of rail service for traffic that would ordinarily use the Panama Canal's facilities. I hope sincerely this discussion will be helpful to the Subcommittee in its deliberations.

At the outset, it is important to recognize the practical, physical limitations of any form of transportation that operates in

the context of an intermodal movement. While it is ironic that one of the principal problems confronting the Nation's railroads is long-term over-capacity, it is equally relevant to this discussion to recognize the critical nature of port capacity on the several coasts and its effect upon efficient cargo transfer ability. Clearly, the efficiency/cost-effectiveness and tonnage capability of an intermodal system involving railroads, and for that matter, inland barge operators, is primarily dependent upon the ability of port operators to smoothly and quickly transfer cargoes to and from ocean vessels to minimize vessel laydown time as well as prevent land side congestion. In brief, while we believe the railroads have the long-term capacity to move nearly any conceivable tonnage of dry bulk or merchandise commodities, that belief is tempered by the fact that physical interchange limitations, among other factors, will effectively preclude full capacity utilization, in the short term, unless major investments in interchange facilities are made.

An excellent example of the practical effect of intermodal limitations may be found in the movement of feed and food grains to Far East/eastern destinations. Nearly 90% of the Nation's corn and soybean exports, and well over half of our wheat exports move through Gulf or Atlantic ports. These port areas are served by a complex

network of rail and water carriers and inland gathering terminals well situated to supply those ports with a constant flow of grains. A substantial portion of these exports, of course, are consigned to Far East destinations.

Leaving aside the question of the economics of deeper draft bulk vessels, the ability of Pacific port areas to absorb additional grain traffic will depend mainly upon two factors. First, grain elevator storage at Pacific ports is equal to only about 40 percent of the elevator storage available at Gulf and Atlantic ports. While this capacity is at present relatively underutilized, proper coordination of trainload service with ocean vessels will certainly require much more storage at the volumes contemplated, even if direct rail/ship loading methods can be used for part of this traffic. Second, even under optimum conditions, the ability of Pacific ports to draw corn and soybeans from, say, Iowa and Illinois, two of the major producers of these commodities, will be limited by the economics of proximity to established rail and water carrier routes to the Gulf, coupled with navigation around Cape Horn or even the Suez Canal. As a corollary to this latter consideration, major shifts in the routing of corn and soybean movements could occur between the Atlantic and Gulf coastal supply areas, but in the case of wheat, increased competition from other countries would likely occur, leaving

Mid-American wheat producers at a competitive disadvantage. It is therefore our belief that rail cost considerations, together with physical port limitations, will result in only a partial absorption of Mid-America's grain exports by the Pacific coast, with the balance moved by longer ocean routes.

In the case of metallurgical quality coal, similar considerations apply, but with even greater effect. While it is certainly physically feasible to transport Appalachian metallurgical coal to the Far East via unit train to the Pacific, the lack of coal handling facilities at Pacific ports, together with the substantial cost that would be involved in such a long distance operation, would certainly accelerate the current trend toward use of the Cape route by vessels loading at Tidewater ports. I am advised that of the some 25 million tons of coal per year destined to the Far East from Norfolk-Newport News and Baltimore, about 40% moves without transiting the Panama Canal. Inasmuch as the only American source of metallurgical coal is in Appalachia, it would appear that little or no incentive for a land transcontinental movement would apply, especially considering the trend toward the Cape route.

In the case of petroleum movements, the railroads are involved, of course, in only a very small fraction of total movement. Again, the capability to haul crude petroleum or products by unit

tank trains is, while a growing application, one that in these circumstances would require major capital investments in equipment and facilities not economically conducive to a short-term application. This heavy capital investment will not allow transportation charges to compare favorably with pipeline unless they are amortized over the useful life of the equipment, despite the fact that the rail right-of-way is already in place.

Entirely different circumstances are associated, however, with containerized commodities. The growing use of land bridge unit train operations for inter-coastal movement is an accomplished fact. The rapid turn-around of rail equipment in bridge service results in cost-effective transportation service. While the vast majority of today's rail movement of containerized cargo involves highway trailers, the available rail fleet for carrying containers is adequate and can be rapidly augmented as the situation warrants.

In conclusion, let me affirm that while the railroad industry indeed possesses the long-term capability to move bulk cargo at reasonable costs, short term absorption of Panama Canal traffic will be severely restrained by a combination of physical port limitations and the more favorable economics of certain ocean vessel routings and operating cost considerations. It is not possible to determine the exact cost comparisons of these alternatives without

careful origin-destination analysis for each major commodity. Moreover, in the longer term, expected cost increases for such movements can and undoubtedly will be overcome by the use of larger, more efficient vessels and the application of proven unit train technology to improve port operations. I am therefore confident that America's inland transportation industry can provide the efficient cost-effective transportation service that may be required to facilitate the Nation's international commerce.

Mr. Chairman, this completes my prepared testimony. Now I will be pleased to answer any questions you may have.

Mr. METCALFE. Thank you very much, Mr. Boone.
Now we will hear from Mr. Reynolds.

STATEMENT OF MR. JAMES J. REYNOLDS

Mr. REYNOLDS. Thank you, Mr. Chairman.

As my brief biographical sketch submitted to the committee indicates, I am president of the American Institute of Merchant Shipping. Our members own and operate about 340 vessels of all types in the oceangoing United States flag fleet.

Five of our member companies presently operate cargo liner services which transit the Panama Canal on a regularly scheduled basis. Among the 30 vessels so employed are a number of the finest and most technologically advanced vessels in existence. They include general cargo liners, container vessels, barge carriers, and combination cargo-passenger carriers.

The AIMS cargo vessels which utilize the Canal provide service from the Atlantic range of ports to the West Coast, the Orient, the West Coast of South America, and the Far East. From the Gulf ports they offer service through the Canal to the Orient and to such important trading centers as Manila, Hong Kong, Singapore, Djakarta, and Bangkok, among a great many.

From the West Coast service is offered via the Canal to the East Coast of South America and continues down around the Horn and up the West Coast of South America, picking up cargo destined for California ports. The economic significance of the Canal to these U.S.-flag carriers and the broad range of U.S. importers and exporters they serve is obvious.

In addition to the AIMS cargo liner operators, other members of our organization operate bulk service carrying large quantities of coal and chemicals through the Canal from Atlantic ports to Japan, the West Coast and between our East and West Coasts. Of immediate future significance to AIMS member companies and those they serve is the planned carriage in Panamax size tankers to Gulf and

Atlantic ports of Alaska crude oil off-loaded from VLCCs in the Pacific off Balboa and Panama City.

All of what I have touched upon thus far conveys some indication of the importance of the Canal to the U.S.-flag Merchant Marine and the U.S. importers, exporters, and the consumers it serves, but the truly dramatic statistic which supports this conclusion is one you heard a number of times this morning, that is, that of all cargo transiting the Canal in vessels regardless of flag nearly 70 percent either originates in or is destined for the U.S.

We of AIMS do not propose nor have we been requested to express views as to the wisdom or otherwise of our nation concluding a treaty which would contemplate the ultimate transfer of the Canal and Zone to the Republic of Panama. We are deeply concerned, however, that whatever arrangements may be finally concluded and approved by the Congress they include, to the ultimate extent possible, assurance of operational continuity and reasonable future toll rate stability.

While the assured future availability of the Canal is of the greatest importance to our own and the world's commerce, a stable rate structure is no less critical if the Canal is to continue as a viable means of ocean commerce between the two great oceans. Under the very able administration of the Canal Company, and particularly under its present administration of General Parfitt, world commerce has come to accept the availability of the Canal as a fact of commercial life.

Over the years, as transits either increased or the size of individual vessels grew dramatically, toll revenues rose and proved sufficient to carry the increasing operational cost of the Canal and its very sizable ancillary supportive activities.

As you will recall, Mr. Chairman, the Canal must bear all costs of operation, including the depreciation. It must pay to the United States interest on the net direct investment in facilities, it must reimburse the government for annuity payments to the Government of Panama, and it must pay to our government the net cost of the Canal Zone Government. All of these, with inflation, with mandatory legislative-directed wage increases and fringe benefit increases, affecting thousands of people down in that area, cause rising costs beyond the capacity of the most efficient management to control.

That is a very serious matter. There has to be a continuity of reasonable toll rates stability as there has been in past years. The so-called user's surplus mentioned by General Parfitt was repeatedly realized and ship operators and consumers of shipping services found the use of the Canal a desirable alternative to other routes of transportation. Unfortunately, this situation began to change some three or four years ago, as inflation pushed costs rapidly above toll revenues, and it was further complicated by a serious worldwide economic recession and a decline in transits.

As a result, Mr. Chairman, during the three years of 1974, 1975, and 1976, measures were taken by the company to increase vessel transit fees approximately 45 percent, and with a compounding effect that amounts to about 50%, I understand. For many United States and foreign flag users of the Canal, that so-called user's

surplus began disappearing. If the trend of increasing toll rates continues, it is inevitable that operators, wherever possible, will seek alternatives to using the Canal.

Already one of our operators based in the Gulf and serving the Far East has experimented with routing some of his ships to his distant ports of call by sailing eastward, via the Cape of Good Hope or the Suez Canal.

It is well to remember that although, as General Parfitt mentioned this morning, the distance between New York and Los Angeles through the Canal is 8,000 miles less than around the Horn, and from New York to Singapore via the Suez Canal is 3,000 miles more than using the Canal, there are a lot of other services where the arithmetic is not quite so unattractive.

For instance, the distance from New Orleans to Singapore via the Panama Canal is 11,938 miles; by Suez it is 11,491; and by Cape Hope, with no Canal charges whatsoever, it is 12,887. From New York to Hong Kong via the Canal is 11,213 miles; via Suez it is less than 400 miles longer. Singapore is 12,523 miles from New York via Panama; it is only 10,151 by way of Suez, or 12,380 by the Cape.

Now under the present toll structure, one of our member companies presently pays a toll of $72,000 per vessel for transiting the Canal enroute to Australia and New York. The added distance down around the Horn forces him to continue to use the Panama Canal, but you can rest assured, Mr. Chairman, that any sizable increase in the cost of that service is going to compel him to make a careful reevaluation of his routing.

These trial voyages and the mathematical computations will be converted into routine operational decisions if Canal toll rates, either during a transitional period or subsequent thereto, escalate in any sizable degree. For our cargo liner companies serving Atlantic and Gulf ports to Japan, there is no visible ocean alterntive routing. Escalating toll rates mean diversion to the minibridge, and if a carrier is not authorized to sail in and out of the West Coast, he will be forced out of the trade.

To the bulk operators carrying coal or chemicals, the minibridge is no alternative service really, as has been pointed out here. He must either accept the higher costs of transiting the Canal to the extxent they can be passed on to the user of the service, or somehow acquire the tremendous vessels that are so large they can sail around the Horn and actually deliver bulk carriers in Japan at an acceptable cost.

In summary, we think the Canal is a most important instrument of oceanborne commerce; in spite of its venerable age it can still handle vessels well over 900 feet in length, with beams of 600 feet and drafts of 37 feet. But unless the toll structure is reasonably stable, it will price itself out of business.

In any discussions, whether looking to a change in control or otherwise, this fact had better be kept in mind.

Thank you, Mr. Chairman.

Mr. METCALFE. Thank you, Mr. Reynolds.

Mr. Reynolds, Mr. James Boone in his prepared statement, on page 4, said that he is advised, and I quote, "that of some 25 million tons of coal per year destined to the Far East from Norfolk,

Newport News, and Baltimore, about 40 percent move without transiting the Panama Canal."

My questions are: Is there a growing trend to ship the coal by the Cape route; and secondly, if so, why?

Mr. REYNOLDS. In the first place, with the greatest respect for my colleague at the table here, I do not think that the figure "without transiting the Canal" is up to 40 percent. But there is a sizable amount going down around the Horn. It is going strictly because it can be done cheaper.

The largest vessel that I know of going through the Canal, with coal, was a 64,000-tonner. That was in the heavy water season. Economically, when you get into 80, 100,000, 250,000-tonners, you can afford to go down around the Horn and deliver your product in the Far East or Japan at a lower cost than going through the Canal with a smaller vessel and paying a toll.

So the trend is there and it will continue and it will be accelerated as tolls go up, which they apparently inevitably will with the rising costs of the very sizable Canal Zone family of employees and the big military installation down there which utilizes schools, et cetera; not that the military presence is a direct burden of tolls, I hasten to add.

Mr. METCALFE. On page 4 of your prepared statement you state that one of your member companies pays a total of $71,000 per vessel to transit the Canal enroute to Australia from New York, and you state "Any sizable increase in the cost of that service will compel careful evaluation of this routing."

My questions are: How many of your members are in a similar situation and secondly, at what point would it no longer be profitable for AIMS cargo liners to use the Canal?

Mr. REYNOLDS. It depends entirely in which service they are engaged.

For instance, for our members who presently provide service from the Atlantic range of ports through the Canal up to Japan, there is no alternative. If toll rates go up, it just means the minibridge becomes increasingly attractive. It just means they will lose cargo and it would be a very serious loss.

The same applies to vessels out of Gulf ports serving Japan, bcause again, when you go from the Atlantic to the Pacific to Japan, you have to head sharply in a northwesterly direction to get up to Japan and there is no way to do it except to go through the Canal.

Competing companies are vigorously seeking the cargo out of the southern range of industrial communities from New Orleans, Birmingham, Galveston, Houston, by employing the so-called minibridge and taking cargo on from that area by rail to Oakland, put it on vessels and carry it to Japan.

Now that means that those companies in the Gulf that are going to be subject to escalating toll costs are gradually going to be forced out of that service. Now you take a little different group of parameters, companies out of the Gulf, serving the ports in the Far East, all the way east to the Persia Gulf, their situation then becomes entirely one of economics.

If the tolls rise to a point where it is more economical for them to sail eastward, either through the Suez Canal or down around the Cape from the Gulf and out, they will do that. It is this one company which has experimented with this, whose president said to me the other day that the costs are getting so close that if tolls go much higher they will reorient their services that way.

Now some companies, for instance United States Lines is the best example I can think of, come out of New York and they serve Japan and also the Far East, but they have to make those points of call in Japan and then come down. So they are locked into the use of the Panama Canal, and as costs go up they will inevitably lose to the minibridge more and more cargo, but they still have authority to pick cargo up on the West Coast and take it to Japan, then go on down to the Far East. So each company has a different set of problems, but they all add up to this: that as tolls escalate, either because under efficient American management costs are uncontrollable or because another management takes over and would regard the Canal as a money-making machine, one way or the other it means that companies will either have to go out of the service or they will utilize other routes.

With regard to this, Mr. Metcalfe, I think it is interesting to note that when the Suez Canal reopened, the matter of the toll structure was a matter of the most careful negotiation. Members of my organization participated in those negotiations. But there the situation was entirely different, it was not a matter of how much it cost to operate the Suez Canal, and that those costs by law had to be realized, as it is with General Parfitt.

In the Suez situation they merely looked at it from the point of view of how much is it going to cost you to go the Horn way or go another way, and therefore how much will the Suez tolls be able to bear?

They set the tolls at levels that are as much as two and one-half times as much as the Panama Canal, and yet they are attractive because of the geography of going from Eastern Europe down around the Horn and up, as you see. So the Suez is now turning over to the government of Egypt somewhere between $70 million and $80 million a year and is one of the largest sources of revenue that the Government of Egypt presently, as far as the carriers going through are concerned, they find it an economically livable situation.

Mr. METCALFE. Thank you.

Mr. Casey, how does the Panama Canal relate to shipbuilding activities in the U.S.? And I may go on and say, because of the restricted dimensions of the Canal, will the economy of using larger ships one day overtake the advantage offered by the Canal?

Mr. CASEY. I think that is true, Mr. Chairman, as indicated by your reference to the coal movement that has been diverted to larger ships. If there is a substantial increase in the Canal tolls, this will obviously change the configuration of ships and require larger ships to remain competitive.

Generally speaking, our fleet is comprised of relatively small-sized ships. To some extent, this is a function of our ports. We do not have deep water ports in the U.S., and, consequently, the ships

are smaller-sized to meet these port draft limitations. Consequently, we do not have the same number of large ships registered under the U.S. flag as do foreign nations.

I think any change in the Canal situation, such as closure or greatly increased tolls, would be prejudicial to the American-flag fleet because it would end the trade for which some of our ships have been built and force them to compete with larger foreign-flag vessels which are better suited for longer trade routes.

If such changes in the Canal situation were to occur, the shipbuilding industry in the U.S. might benefit from the construction of larger U.S. flag ships to compete in the place of some of the smaller U.S. flag vessels that would become uncompetitive.

Mr. METCALFE. Thank you.

Do you foresee that the railroad land bridge movement will continue to grow in the years to come?

Mr. CASEY. Yes, I think it will. Over the last two years, it has grown by leaps and bounds. The minibridge and landbridge systems are much more economically feasible than they were before cargoes could be containerized, and I don't think we have seen the end of their growth. As Mr. Reynolds has indicated, this growth has hurt some of the operators who, for example, were previously operating from the Atlantic Coast to Japan, through the Canal. A lot of that cargo has been diverted into minibridge services going cross-country and out through Pacific Coast ports.

Mr. METCALFE. Mr. Boone, did you wish to comment?

Mr. BOONE. Yes, Mr. Chairman. I would echo the comments of my colleagues on the panel here. The majority of service that occurs now is called piggyback service, which involves the use of 40-foot containers or their equivalents mounted on railroad flat cars having rubber tires on the container. There will be, in our view, an accelerated trend in general toward the movement of what is called flat back or container movements, whether or not they are in domestic or international service, and one will, of course, benefit the other.

Mr. METCALFE. Thank you.

One final question, Mr. Casey. How is it that your testimony places such a heavy emphasis on Canal tolls, when these are only a small part of the shipping operation costs?

Mr. CASEY. I think the level of Canal tolls is that which the traffic can bear. However, it is the total impact of any possible future toll hikes which concerns the Maritime Administration shipping costs, such changes in toll rates would cause a diversion of cargo. It is really these other dynamic effects of the movement of goods with which we are concerned. For example, as I mentioned in my statement, coffee from Colombia is an important commodity for American-flag carriers. If toll increases were so high as to make Colombian coffee uncompetitive with Brazilian coffee in the U.S. East Coast market, it would be the substantial loss of business rather than the payment of tolls that would not affect the American carriers and other carriers in that trade.

Mr. METCALFE. Thank you very much.

Mr. Boone, if the railroad industries were required for any reason to absorb portions of Panama Canal traffic, would not the invest-

ment of new facilities to handle the traffic stimulate U.S. economic activity at least more so than a modernized sea level canal would?

Mr. BOONE. Mr. Chairman, it is difficult to tell the scale of the investment that would be required. As I mentioned in my testimony, to participate in part of that routing we would have to consider rather large-scale expansion in port facilities on the Pacific Coast. That would require certainly some substantial investments, investments that would be utilized, hopefully, in both directions, be they for export or import, with the exception of commodities such as coal, which are destined for one way.

At the same time, of course, there would be vigorous competition, in my opinion, from the port areas surrounding the Gulf, the East and West Gulf, and certainly from those portions of the Atlantic ports which may have some contact in that portion of the trade.

It would be difficult for me to estimate, again, what total amount of investment would be required since in the case of grain, for example, there are currently some relatively underutilized grain elevators on the West Coast, but there would have to be significant expansion if they were to absorb the traffic that normally exits the port areas of Houston and the port areas of New Orleans and their subports. The tremendous quantities of grain that go out of those ports, some substantial portion of that heads for the Far East, and there would have to be significant expansion in the West Coast, the scale of which I really couldn't begin to describe, sir.

Mr. METCALFE. Thank you.

What would be the regulatory or bureaucratic problems of the railroads be in absorbing part of the Panama Canal traffic, and has this factor been considered in the Department of Transportation study you referenced?

Mr. BOONE. The problems would primarily be that of developing rate structures, that is, charges for the movements of those commodities to the port areas that are sufficiently compensatory to the carriers and yet allow for the efficient and cost-effective movement of these goods. There would be significant problems with respect to portions of the Interstate Commerce Act, in my opinion, that involve factors of port equalization. They would be most difficult for the Interstate Commerce Commission to sort out, but there are trends, as a matter of fact, in the grain industry, toward the movement of some grains to the West Coast now. The railroads, I believe, have published some relatively low-cost unit train rates to the West Coast, and I anticipate that trend to slowly grow. But other than that, I would see no regulatory problems that would inhibit that service, sir.

Mr. METCALFE. Thank you very much.

I recognize the Majority Counsel, Mr. Modglin, for any questions he may have.

Mr. MODGLIN. Thank you, Mr. Chairman. I have a few brief ones to Mr. Casey.

You alluded in your statement, sir, to the difference in insurance rates that might accrue between ships utilizing the Panama Canal and going around the Cape. Could the Maritime Administration provide for the record some specifics as to the difference in the

insurance rates? Do you have any further comments on the question of these rates?

Mr. CASEY. We will try, Mr. Counselor. One of the practices of insurance is that past losses affect current insurance rates, consequently, until you have experienced what might happen as a result of the expanded use of Cape Horn, it will be difficult to quantify the changes. Nevertheless we will do our best to provide you with some specifics on the differences in insurance rates.

[The following has received:]

DIFFERENCE IN INSURANCE RATES FOR VESSELS USING THE PANAMA CANAL AND CAPE HORN

The Maritime Administration has consulted a number of marine cargo and hull insurance underwriters and brokers, as well as officials of the U.S. Salvage Association. The consensus was that the Panama Canal route was a better risk than the route around the Horn, despite the relatively crowded conditions on both sides of the Canal. This consensus is due to the Cape's natural navigational hazards, such as weather, ice, and rocky coastline, and the limited navigation aids.

In addition it was determined that vessels operating in limited trading areas, such as intercoastally or the the Gulf or Carribean, would be expected to benefit from lower insurance premiums by using the Panama Canal instead of Cape Horn. This benefit derives from the rating practices presently prevailing for trade warranties.

The owner of a vessel trading worldwide must purchase the American Institute Trade Warranties, which permit transit of the Panama Canal and navigation around Cape Horn without an additional premium. For vessels operating in limited trading areas, the owners may, because of the beneficial difference in risks associated with such restricted trade, apply to underwriters for restricted trade warranties at a reduced premium of 5% to 7% from that for the worldwide warranties. However, as their name implies, these restricted warranties, like the Atlantic, Gulf, and West Indies Trade Warranties or the Intercoastal Trade Warranties, do not permit passage around Cape Horn without payment of an additional premium. Thus, for example, the owner of a vessel operating regularly in the U.S. intercoastal trade could insure the vessel under Intercoastal Trade Warranties,

which would permit transit of the Canal without an additional premium. But, if the same vessel changed its regular Canal route to go around Cape Horn, a route not covered by the restricted warranties, the owner would have to pay an additional annual premium to cover the changed risks.

Mr. MODGLIN. In elaboration of your testimony, you indicated that the existence of the Panama Canal allowed for a reduction in the size of the U.S. merchant fleet. Would it be possible for the Maritime Administration to try to attempt to quantify in any way to what extent U.S. fleet size is reduced as a result of the ability to transit the Canal?

Mr. CASEY. Again, we will attempt to provide you with some information. Of course, what I intended to convey by my statement was that, because of the shortened distances made possible by use of the Canal, an individual ship has a greater lay-down capacity than if it had to go around the Horn. Again, much of this depends on how the routing of cargo is affected. I think it would be incorrect, for example, to consider merely the increase in distance, or decrease in lay-down capacity and express it in terms of increased tonnage requirements because I don't believe the trade would remain static. You would have other competitive factors operating. For example, Bananas from Ecuador is another significant commodity coming to the U.S. East Coast market. If, in fact, there were no Canal, the longer distance, required by the Cape Horn route could deter the shipment of these bananas because of the climactic situation around the Horn. This would be a movement that would just simply case.

Consequently, any attempt to quantify how much additional tonnage would be required if the Canal were not used would be difficult, because of the other factors that affect trade movements. However, we will try our best to provide something for the record.

[The following was received:]

REDUCTION IN THE SIZE OF THE U.S. MERCHANT FLEET DUE TO THE PANAMA CANAL

As previously suggested, a quantification of the reduction in U.S. fleet size resulting from use of the Canal would be difficult. Regrettably, we have not found it possible to develop any data on the question. Nevertheless, it is clear that use of the Canal permits greater lay-down capacity for vessels which, in turn, results in lower tonnage levels necessary to carry a given amount of cargo.

It would be incorrect, however, to speculate that this reduction in fleet size, whatever it might be, would equal the percentage of expansion necessary in that component of the U.S. fleet now transiting the Canal in the event the Canal became unavailable for any reason. Several countervailing factors would come into play.

For example, since the intercoastal trade cannot be carried by foreign-flag vessels, alternate modes of transportation, such as the landbridge system, could become more economical for selected cargoes. In such instances, the need for increased tonnage would be eliminated. For nonintercoastal trades, larger foreign-flag vessels might compete favorably for cargoes otherwise shipped in U.S.-flag bottoms through the Canal. Finally, many markets might not be able to survive the increased transportation costs and the volume of trade itself may decline. The effects of all these factors, operating simultaneously, are dynamic and virtually impossible to assess accurately.

However, to the extent that U.S.-flag vessels can retain even the major share of their present trade volumes now transiting the Canal, the amount of deadweight tonnage required would increase if the Canal were no longer used.

Mr. MODGLIN. One last question. Do you expect that U.S. trade on the routes that transit the Canal will increase, decrease, or stay relatively in the same the next quarter of a century?

Mr. CASEY. We expect a rather significant increase in traffic through the Canal. We have prepared a forecast of future Canal traffic, by commodity, for both experts and imports and will be glad to submit it for the record. I think that the South American economies are growing, and, given favorable conditions, that the traffic through the Canal will grow rather substantially.

Mr. MODGLIN. If that is your estimate, does that not conflict with the testimony of some of the other witnesses who have indicated that Canal traffic will either increase at a more moderate rate or stay relatively the same in the years to come?

Mr. CASEY. I don't think it is inconsistent. I think one of the earlier panel members indicated they expected a 2-percent rate of growth. A 2-percent growth rate, compounded over the next 23 years, is, I believe a rather substantial growth of traffic. Marad's forecast, to which I referred earlier, indicate's a higher rate of growth than was forecasted by the witness on the first panel, but no one has contradicted the fact that there would be growth. The only question is how much.

[The following was received:]

FORECAST FOR TRAFFIC ON U.S. MARITIME TRADE ROUTES WHICH INCLUDE THE PANAMA CANAL

The forecast referred to in my testimony has been submitted for the record as part of my response to Question No. 9 of the 14 questions presented by the Subcommittee prior to the hearing. It should be noted that this forecast indicates an average growth rate of slightly more than 3% for total U.S. tonnage transiting the Canal.

Mr. MODGLIN. Thank you, Mr. Chairman.

Mr. METCALFE. Thank you.

Does Minority Counsel have questions?

Mr. BRUCE. No questions.

Mr. METCALFE. Thank you.

I would like to thank the members of the panel for their position papers, their statements and their answers to the questions posed.

The hearings on the Panama Canal will now recess until two o'clock tomorrow, at which time we will take up the third panel, which will be discussing the military aspects of the Panama Canal.

Thank you very much. We stand in recess.

[Whereupon, at 1:45 p.m., the committee recessed, to reconvene at 2:00 p.m. o'clock, Tuesday, July 26, 1977.]

U.S. VITAL INTERESTS IN THE PANAMA CANAL

TUESDAY, JULY 26, 1977

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PANAMA CANAL,
COMMITTEE ON MERCHANT MARINE AND FISHERIES,
Washington, D.C.

The subcommittee met, pursuant to recess, at 2:08 p.m., in Room 1310, Longworth House Office, Building, Hon. Ralph H. Metcalfe (chairman) presiding.

Mr. METCALFE. The Subcommittee on the Panama Canal will come to order.

Ladies and gentleman, today we continue Panama Canal Subcommittee hearings on the vital interests of the U.S. in the Panama Canal and Canal Zone during the last quarter of this century.

Today we will focus on the military and strategic significance of the Canal to the United States. We are very fortunate to have with us a representative of the Joint Chiefs of Staff, as well as two distinguished citizens who have studied the militarY value of the Canal.

I would like to extend my personal thanks and the thanks of the subcommittee to the Joint Chiefs of Staff for participating in these hearings. We know that their statement, at a time when negotiations are ongoing, is a very sensitive matter, but we feel very strongly that the Congress and the American people need a more definitive look at the significance of the Canal from a military viewpoint. The Joint Chiefs have cooperated with us, and we commend them for this.

The representative of the Joint Chiefs, General Irwin Graham, will appear as our first witness today. He is unable to participate on the panel, due to a long-established policy that precludes JCS testimony in that setting.

General Graham is an Air Force Brigadier General, serving as Assistant Deputy Director for Politico-Military Affairs, Plans and Policy Directorate, Joint Chiefs of Staff. He holds a Master's degree in aeronautical engineering and an MBA from George Washington University.

General Graham's distinguished career has included a tour of duty as instructor at the U.S. Naval Academy. He is a distinguished graduate of the Air Command and Staff College and the Industrial

College of the Armed Forces. His distinguished service in the Air Force has included top assignments in the area of planning and strategy in Japan, the Philippines, Hawaii, and Vietnam.

In August 1975, the general was assigned as the Air Force member of the Chairman's Staff Group, Joint Chiefs of Staff. In July 1976, he was selected to be Executive Assistant and Senior Aide to the Chairman of the Joint Chiefs of Staff. General Graham assumed his present position in June of this year.

Our distinguished panel that will follow General Graham includes Robert G. Cox of Cleveland, Ohio, and retired Colonel John P. Sheffey.

Mr. Cox is currently a management consultant who keeps in close touch with Latin American affairs. He was a poltical officer in the U.S. Embassies in Panama and Venezuela. He was also a member of a blue-ribbon State Department-Defense Department working group which examined in 1964 U.S. defense representation in Latin America. As a Special Assistant to President Johnson from 1966 to 1968, he advised on many matters, including appointments to Canal-related agencies. Most recently, Mr. Cox has been a consultant to the Commission on U.S.-Latin American Relations and the Commission on the Organization of the Government for the Conduct of Foreign Policy.

Colonel John Sheffey is well-acquainted with the Panama Canal issue. For five years he was the Military Assistant to the Secretary of the Army for Panama Canal matters; for five years he was the Executive Director of the President's Atlantic-Pacific Interoceanic Canal Study Commission, and for three years he was Special Advisor to the U.S. Treaty Negotiations team. Presently he is Executive Vice President of the National Association for Uniformed Services.

I now recognize the distinguished gentleman from California if he wishes to make an opening statement before I call the General to testify.

Mr. DORNAN. Thank you, Mr. Chairman.

By way of an opening statement, I would like to read a letter by four United States Senators sent to the President of the United States, with an enclosed letter that is only a page and a half long, signed by four distinguished former admirals of the United States Navy, who are all former Chiefs of Naval Operations.

The letter of the senators reads:

[The following letter was read by Mr. Dornan:]

WARREN G. MAGNUSON, WASH.
JOHN C. STENNIS, MISS.
ROBERT C. BYRD, W. VA.
WILLIAM PROXMIRE, WIS.
DANIEL K. INOUYE, HAWAII
ERNEST F. HOLLINGS, S.C.
BIRCH BAYH, IND.
THOMAS F. EAGLETON, MO.
LAWTON CHILES, FLA.
J. BENNETT JOHNSTON, LA.
WALTER D. HUDDLESTON, KY.
QUENTIN N. BURDICK, N. DAK.
PATRICK J. LEAHY, VT.
JAMES R. SASSER, TENN.
DENNIS DE CONCINI, ARIZ.

MILTON R. YOUNG, N. DAK.
CLIFFORD P. CASE, N.J.
EDWARD W. BROOKE, MASS.
MARK O. HATFIELD, OREG.
TED STEVENS, ALASKA
CHARLES MCC. MATHIAS, JR., MD.
RICHARD S. SCHWEIKER, PA.
HENRY BELLMON, OKLA.
LOWELL P. WEICKER, JR., CONN.

JAMES R. CALLOWAY
CHIEF COUNSEL AND STAFF DIRECTOR

United States Senate
COMMITTEE ON APPROPRIATIONS
WASHINGTON, D.C. 20510

June 15, 1977

The President
The White House
Washington D. C.

Dear Mr. President:

We are enclosing a most important letter from four former Chiefs of Naval Operations who give their combined judgement on the strategic value of the Panama Canal to the United States.

We think you will agree that these four men are among the greatest living naval strategists today, both in terms of experience and judgement. Their letter concludes:

"It is our considered individual and combined judgement that you should instruct our negotiators to retain full sovereign control for the United States over both the Panama Canal and its protective frame, the U.S. Canal Zone as provided in the existing treaty."

We concur in their judgement and trust you will find such action wholly consistent with our national interest and will act accordingly.

Sincerely,

Strom Thurmond
Strom Thurmond USS

John L. McClellan
John L. McClellan USS

Jesse Helms
Jesse Helms USS

Harry F. Byrd, Jr.
Harry F. Byrd, Jr. USS

Mr. DORNAN. That enclosed letter from the Admirals reads as follows:

[The following letter was read by Mr. Dornan:]

June 8, 1977

The President
The White House
Washington, D. C.

Dear Mr. President:

As former Chiefs of Naval Operations, fleet commanders and Naval Advisers to previous Presidents, we believe we have an obligation to you and the nation to offer our combined judgment on the strategic value of the Panama Canal to the United States.

Contrary to what we read about the declining strategic and economic value of the Canal, the truth is that this inter-oceanic waterway is as important, if not more so, to the United States than ever. The Panama Canal enables the United States to transfer its naval forces and commercial units from ocean to ocean as the need arises. This capability is increasingly important now in view of the reduced size of the U. S. Atlantic and Pacific fleets.

We recognize that the Navy's largest aircraft carriers and some of the world's super-tankers are too wide to transit the Canal as it exists today. The super-tankers represent but a small percentage of the world's commercial fleets. From a strategic viewpoint, the Navy's largest carriers can be wisely positioned as pressures and tensions build in any kind of a short-range, limited situation. Meanwhile, the hundreds of combatants, from submarines to cruisers, can be funneled through the transit as can the vital fleet train needed to sustain the combatants. In the years ahead as carriers become smaller or as the Canal is modernized, this problem will no longer exist.

Our experience has been that as each crisis developed during our active service--World War II, Korea, Vietnam and the Cuban missile crisis--the value of the Canal was forcefully emphasized by emergency transits of our naval units and massive logistic support for the Armed Forces. The Canal provided operational flexibility and rapid mobility. In addition, there are the psychological advantages of this power potential. As Commander-in-Chief, you will find the ownership and sovereign control of the Canal indispensable during periods of tension and conflict.

As long as most of the world's combatant and commercial tonnage can transit through the Canal, it offers inestimable strategic advantages to the United States, giving us maximum strength at minimum cost. Moreover, sovereignty and jurisdiction over the Canal Zone and Canal offer the opportunity to use the waterway or to deny its use to others in wartime. This authority was especially helpful during World War II and also Vietnam. Under the control of a potential adversary, the Panama Canal would become an immediate crucial problem and prove a serious weakness in the over-all U. S. defense capability, with enormous potential consequences for evil.

Mr. President, you have become our leader at a time when the adequacy of our naval capabilities is being seriously challenged. The existing maritime threat to us is compounded by the possibility that the Canal under Panamanian sovereignty could be neutralized or lost, depending on that government's relationship with other nations. We note that the present Panamanian government has close ties with the present Cuban government which in turn is closely tied to the Soviet Union. Loss of the Panama Canal, which would be a serious set-back in war, would contribute to the encirclement of the U.S. by hostile naval forces, and threaten our ability to survive.

For meeting the current situation, you have the well-known precedent of former distinguished Secretary of State (later Chief Justice) Charles Evans Hughes, who, when faced with a comparable situation in 1923, declared to the Panamanian government that it was an "absolute futility" for it "to expect an American administration, no matter what it was, any President or any Secretary of State, ever to surrender any part of (the) rights which the United States had acquired under the Treaty of 1903," (Ho. Doc. No. 474, 89th Congress, p. 154).

We recognize that a certain amount of social unrest is generated by the contrast in living standards between Zonians and Panamanians living nearby. Bilateral programs are recommended to upgrade Panamanian boundary areas. Canal modernization, once U.S. sovereignty is guaranteed, might benefit the entire Panamanian economy, and especially those areas near the U. S. Zone.

The Panama Canal represents a vital portion of our U.S. naval and maritime assets, all of which are absolutely essential for free world security. It is our considered individual and combined judgment that you should instruct our negotiators to retain full sovereign control for the United States over both the Panama Canal and its protective frame, the U.S. Canal Zone as provided in the existing treaty.

Very respectfully,

Robt B. Carney
ROBERT B. CARNEY

Arleigh Burke
ARLEIGH A. BURKE

George W. Anderson
GEORGE ANDERSON

Thomas H. Moorer
THOMAS H. MOORER

Mr. DORNAN. I only wish that the hearings provided time, Mr. Chairman, for Admiral Moorer himself to testify. He has given us a five-page statement that I ask be inserted into the record at this point. Much of it is his testimony also given to the United States Senate on the 22nd of July of this year .

Mr. METCALFE. There being no objection, it will be so ordered that the statement in its entirety will be entered into the record.

Mr. DORNAN. Thank you, Mr. Chairman.

[Prepared statement of Admiral Thomas H. Moorer follows:]

STATEMENT BY ADMIRAL THOMAS H. MOORER, USN (Ret.), CHAIRMAN OF THE JOINT CHIEFS OF STAFF 1970-1974, BEFORE THE SUBCOMMITTEE ON THE SEPARATION OF POWERS, COMMITTEE ON JUDICIARY, U.S. SENATE, 22 JULY 1977.

Mr. Chairman and Distinguished Members of the Subcommittee on the Separation of Powers,

I am honored to be here as a witness. I hope my testimony will prove helpful in these hearings regarding the U.S. Canal Zone and the Panama Canal.

My military experience during the last twelve years of active duty, from 1962 to 1974, offered me some extraordinary and unique opportunities to assess the importance of the Panama Canal to the United States, as well as its value to our Allies and friends and, indeed, to all maritime nations.

My evaluation of this waterway as an invaluable possession of the United States was intensified in 1962. At that time I was Commander Seventh Fleet operating in the Western Pacific. Frequently my fleet's capabilities depended on the prompt arrival of supplies from the Atlantic seaboard, supplies loaded aboard ships which were utilizing the Panama Canal.

From the Seventh Fleet I went to Commander-in-Chief, Pacific; from there to Commander-in-Chief, Atlantic, and NATO's Supreme Allied Commander, Atlantic; from there to Chief of Naval Operations and from there to Chairman of the Joint Chiefs of Staff. Each of these commands provided unique opportunities, and sometimes urgent reasons, to evaluate the Panama Canal. I saw this strategic waterway from many vantage points and under stressful circumstances.

As Commander-in-Chief, Pacific, I recall in some detail the Tonkin Gulf era of 1964. During that period I saw the Panama Canal as a conduit for rapid reinforcement from the Atlantic Fleet should the naval forces of the

Soviet Union or mainland China become involved in the Vietnamese War. The U.S. high command was never sure during those early phases of the war of the intentions of either the Soviet Union or mainland China. We knew they had the naval and air capabilities to make trouble and therefore we had to draw up contingency plans for such eventualities. In order to equalize the wartime exposure and hardship throughout the entire Navy, large numbers of Atlantic Fleet units were continuously rotated through the Canal to the combat theatre in the Pacific. In addition, as the Pacific Fleet Commander, I looked to the Atlantic side for rapid logistics support. The U.S. Army, the U.S. Air Force, the U.S. Marine Corps and the U.S. Navy all required a continuous and heavy flow of logistic support; such necessities as fuel, ammunition, spare parts and food. Our allies fighting with us in Vietnam also required considerable support from the United States. If the Panama Canal had not been open and available, the war in Vietnam would have been much more difficult and costly to conduct. This conclusion is also true for the war in Korea.

To give you some idea of the magnitude of Panama Canal usage and its relationship to the war effort, in 1963 there was a total of 300 U.S. government transits through the Panama Canal. As the war escalated, the number of government ships transiting by 1966 had almost doubled. The records show for that year--1966-- a total of 591 government ships transited the Canal. Most of these ships were carrying critically needed logistics support to the forces operating under my command.

As Commander-in-Chief, Atlantic, and NATO's Supreme Allied Commander, I saw the situation at Panama in another perspective. That was for the period 1965 to 1967. The war in Vietnam was still expanding, but now I was

looking at the Canal not only as a means of sending support to the Commander-in-Chief, Pacific, but also from the Atlantic perspective. I saw the possible need to reverse the flow of ships through the Canal, particularly if the situation deteriorated in the Middle East or in the Caribbean during those volatile months of tension and conflict in both these areas.

Both in our U.S. planning and in our NATO planning we envisioned contingencies calling for reinforcements from the Pacific Ocean areas. We envisioned the need for combatant tonnage, Army and Marine Divisions, and particularly we saw the need for amphibious lift.

As Chief of Naval Operations I had to look at the Panama Canal as an essential means of equalizing the strength and providing the balance between the Atlantic and Pacific fleets. The Canal made it possible to pre-position certain types and tonnages, but always with the knowledge that the balance could be shifted to meet unforeseen situations. The Panama Canal gives the naval planner much flexibility and versatility that he would be deprived of without it.

As Chairman of the Joint Chiefs of Staff I became even more sensitive to the strategic value of this U.S. Canal as a means of protecting the security of the United States. My job as Chairman involved all of the Armed Forces of the United States--their collective requirements--and I was primarily responsible to the President for their ability to carry out their roles and missions as assigned by the Congress. Any Commander acting in that capacity will immediately perceive that it is vital to United States interests to retain complete ownership and control of the Panama Canal.

It was at this juncture of my command responsibility that I became concerned about the proposals to surrender the Panama Canal to a leftist

oriented government allied with Cuba. There existed the potential danger for giving this U.S. advantage to a man who might allow or might be persuaded that it was in his best interest to permit Soviet power and influence to prevail by proxy over the Canal, in much the same manner as happened in Cuba. I was convinced as Chairman of the JCS--and I remain convinced today--that if the Soviet Union ever gained even proxy sovereignty and control over the U.S. Canal Zone and Canal through Cuba, U.S. security as well as U.S. prosperity would be placed in serious jeopardy.

The United States would be placed in jeopardy because interocean mobility would be threatened. The mobility of allied commercial shipping and naval forces would face the same threat. The economic lifelines of the entire Western Hemisphere would be needlessly jeopardized, and the point is: there is no point in surrendering this vital interest. I have yet to see any solid justification advanced as to why the United States should willingly sacrifice the strategic advantages afforded to us by our possession of the Panama Canal. Also, by relinquishing control of the Canal Zone and the Canal, we would force all those nations who depend on our power and leadership to accommodate to the adverse implications of such action on our part. The Canal Zone could become the satellite base of an adversary, and the advocates of "giveaway" do not appear to take this factor into account.

For the foregoing reasons and others not listed, I co-signed with three former Chiefs of Naval Operations a letter to President Carter. The key message in that letter was this: "Under the control of a potential adversary the Panama Canal would become an immediate crucial problem and prove a serious weakness in the overall U.S. defense with enormous potential consequences for evil."

The military and commercial considerations are obvious.

Although the large aircraft carriers and large supertankers cannot use the Canal, 97 percent of the world's commercial and naval fleets can use the Canal as it is. The Canal does need some modernization.

About two-thirds of all the current Canal traffic is bound to or from U.S. ports. When ships round the Horn instead of going through the Canal, they must travel about 8,000 extra miles, have 8,000 extra miles of wear and tear, need 8,000 extra miles of fuel. On an average it takes 31 extra days to round the Horn.

If we were denied use of the Canal, we would have to build a much larger Navy; much larger storage and harbor facilities on both the East and West Coasts of the United States, and provide more merchant ships as well as escorts.

Surrender of U.S. sovereignty over the Canal Zone would inevitably lead to the transformation of the entire friendly character of the Caribbean and the Gulf of Mexico. Everything would depend on the attitude of those who held sovereignty and ownership.

In military affairs there is no substitute for ownership of the territory and the ability to control or to deny the waters and the air space.

After having lived through three decades of conflict I don't believe it takes much imagination to envisage some of the pitfalls we might face in turning the U.S. Canal Zone and Canal over to any government that might see fit to use it against us. Mr. Chairman, I would like to include in the record the letter signed by four Chiefs of Naval Operations, including myself, and the forwarding endorsement signed by four distinguished members of the United States Senate as part of my statement.

Regarding the question of sovereignty, ownership and control of the U.S. Canal Zone and the Canal, I am not a lawyer, but I am satisfied with the Supreme Court's decision of 1907 in the famous Wilson vs. Shaw case that the United States does have legal sovereignty and ownership for the purposes enumerated in the Treaty of 1903. This ruling was reaffirmed as recently as 1972. Also, our Constitution states in Article IV, Section 3, Clause 2, that only Congress has the authority to dispose of U.S. territory and other property of the United States. The language in the Supreme Court's decision of 1907 is quite precise. It is not ambiguous. So is the language in our Constitution. Since the Supreme Court's decision of 1907 still stands --it has never been overruled--and since the Constitution, in my opinion, is still the best governing document in existence, I can only conclude that we would be well advised to abide by these documents in our negotiations with other countries.

Thank you Mr. Chairman.

Mr. METCALFE. Thank you very much, Mr. Dornan.

Will Brigadier General Irwin P. Graham come to the witness table?

General Graham is a Brigadier General in the United States Air Force, and is the Assistant Deputy Director, Politico-Military Affairs, Plans and Policy Directorate, Joint Chiefs of Staff.

General Graham, we are delighted that you are able to be with us to make a presentation to us this afternoon. Will you proceed, please.

STATEMENT OF BRIGADIER GENERAL IRWIN P. GRAHAM, USAF, ASSISTANT DEPUTY DIRECTOR, POLITICO-MILITARY AFFIARS, PLANS AND POLICY DIRECTORATE, JOINT CHIEFS OF STAFF

General GRAHAM. Thank you, Mr. Dornan, Mr. Chairman.

[The following statement was read by General Graham:]

STATEMENT BY
BRIGADIER GENERAL I. P. GRAHAM, USAF
ORGANIZATION OF THE JOINT CHIEFS OF STAFF
BEFORE THE HOUSE COMMITTEE ON MERCHANT
MARINE AND FISHERIES, PANAMA CANAL
SUBCOMMITTEE ON 26 JULY 1977

Mr. Chairman and Members of the Committee:

I have been asked to comment on the subject of "Vital Interests of the United States in the Panama Canal and the Canal Zone during the Last Quarter of this Century." More specifically I will provide the information requested by the Subcommittee on the military importance of the Panama Canal and military activities and installations in the Canal Zone.

In order to establish the proper context for my testimony, I want to emphasize that United States military interest in the Panama Canal is in its use in peace and war. The Joint Chiefs of Staff have recognized the need for modernizing our relationship with Panama to sustain the friendly environment which is so important to safeguarding this facility.

The 1974 Joint Statement of Principles governing the negotiations provides for abrogation of the 1903 Treaty, agreement on a new fixed term treaty, termination of United States jurisdiction, increased Panamanian participation in canal operation and defense, and assumption by Panama of total responsibility for the operation of the canal upon termination of the treaty. The Joint Chiefs of Staff support that statement.

With regard to the Panama Canal's strategic value to the United States, it is the view of the Joint Chiefs of Staff that the canal is a major defense asset, the use of which enhances United States capability for timely reinforcement of United States forces. Its principal strategic military advantage lies in the economy and flexibility it provides to accelerate the shift of military forces and logistic support by sea between the Atlantic and Pacific Oceans and to overseas areas. Denial of its use would increase the importance of the sea lines of communication around South America.

Our planning for military contingencies requiring shifts of major forces and supplies takes into consideration many variables, including the availability of lines of communication. The Panama Canal shortens our sea lines of communication between the Atlantic and Pacific Oceans, increasing our capability to move needed ships and supplies more rapidly in times of crisis. Alternate plans, however, must be made since we cannot guarantee that the canal will always be available. It is vulnerable to sabotage and, in a nuclear war, there is no effective defense against nuclear missile attack on the canal.

The canal's availability would obviously facilitate implementation of any contingency plan which required movement of ships and supplies between those oceans. While I cannot discuss classified contingency plans here, I can provide some comments of a general nature which affect our contingency planning.

The United States divides its amphibious shipping and naval combat forces between the Atlantic and the Pacific Fleets. A major shift of forces from the continental United States to an overseas area would require repositioning of those fleet assets. Using the canal saves time.

Logistical support of overseas forces will, for the foreseeable future, be dependent to a large extent upon sealift. During the Vietnam War, approximately 96 percent of all tonnage moved to the war zone went by ship. While it is feasible, and often preferable, to move personnel by air, the bulk of their heavy equipment and logistical support must be moved by sea since the United States does not have the vast armada of air transport which would be required to move that cargo.

Therefore, in the opening phases of any major overseas deployment by United States forces, the Panama Canal is useful because it reduces the time required to reposition fleet assets and to move logistical support. Also shortening the sea lines of communication reduces the time our shipping is exposed to possible enemy attack and reduces escort requirements.

Under any threat scenario the preferred defense of the Panama Canal would be in conjunction with a friendly Panama. The Panama Canal Zone and the Panama Canal can be defended in a hostile environment; however, it would not be possible to guarantee that the canal could be kept continuously operational. The canal complex is vulnerable to sabotage. The

entire Canal Zone is vulnerable to attack by fire from weapons emplaced outside US jurisdiction where assistance from the Panamanian armed forces would greatly facilitate Canal Zone defense.

The minimum US defense forces required to defend against, for example, sporadic terrorist attacks on locks, dams and other key points would be the Canal Zone police and security forces. These could be reinforced as needed by elements of the 193d Infantry Brigade which is stationed in the Canal Zone. There are plans for rapidly reinforcing these Canal Zone defense forces should the need arise. The size of the reinforcement would be determined by the threat to the canal and to US lives and property in the Canal Zone.

Military activities in the Canal Zone may be characterized as canal defense related and non-canal defense related. The former includes all activities directly related to the accomplishment of USSOUTHCOM's mission of defending the Panama Canal. The effect of relocation of such activities on our defense capability cannot adequately be assessed without knowledge of specific activities to be relocated, their new location, and the timeframe proposed. Non-defense related USSOUTHCOM activities, generally speaking, are located in the Canal Zone because it is a convenient place which enhances efficient operations. In most cases, relocation of non-defense related inter-American activities such as the US Army School of the Americas, the Inter-American Air Force Academy, and the Inter-American Geodetic Survey to a non-Latin American location

would reduce their effectiveness. Relocation of support functions for US military groups in Latin America to another area would probably not materially reduce the efficiency of that activity once the normal shakedown period was completed.

One of the questions posed was, "How do you relate the various aspects of US military involvement and control in the Canal Zone to what you perceive as the foreign policy objectives of the United States?" To answer that question, I believe it would be more appropriate to call upon a representative of the [redacted] Department of State.

The final question posed, regarding how the future geopolitical interests of the United States might affect the Canal's future status is also outside of the purview of the Joint Chiefs of Staff, except to the extent that the canal's strategic value is not expected to change substantially so long as it provides the sole means of transiting ships across the American continent.

In conclusion, the Panama Canal is and will remain an important military asset, the use of which is important to achievement of US military objectives. I would like to thank you for your attention, and I will be pleased to answer to the best of my ability any further questions you may have, within the restrictions imposed by security, regarding the military importance of the Panama Canal.

Mr. METCALFE. Thank you very much, General Graham.

May I ask, is the Panama Canal more or less militarily important to the United States than it was 25 years ago? Why or why not?

General GRAHAM. Sir, we view the Canal as having changed very little in its importance. It has always been a major avenue of movement between the fleets, and we have had the two-fleet situation, since before World War II, the Canal has been an important major military asset and remains so.

Mr. METCALFE. Thank you.

Since it appears that the United States would want to move quickly in case of a conventional war, is the Canal the quickest route for the movement of men and materiel?

General GRAHAM. The Canal remains the only feasible route for the large scale movement of materiel. Men, today, can be moved more quickly by air, and frequently are.

Mr. METCALFE. That answers the second part of that question, to what extent can we move men and material without the Canal? In other words, what are the alternative routes for us to take?

General GRAHAM. The alternative to air shipment is the long route, 8,000 additional miles around Cape Horn, around South America.

Mr. METCALFE. Do you think Latin American signatories of the Rio Treaty would permit any outside military presence perceived as inimical at the Canal?

General GRAHAM. By becoming signatories to the treaty, they have pledged not to, sir.

Mr. METCALFE. The gentleman from California, do you have any questions?

Mr. DORNAN. Yes, Mr. Chairman.

General, I think that the fact that these hearings have been titled by our chairman as involving vital interests, the fact that that word came up so much yesterday morning, I would like to pause and reflect on this word for just a moment.

I believe it was the great Russian writer, Tolstoy, who said the word is an act. If we just look at certain words in our history or the history of other peoples, just the word can conjure all sorts of emotional feelings. Sometimes a name like Nathan Hale, a place like Valley Forge or Pearl Harbor, Alamo can conjure up thoughts and feelings.

I have been looking at some words in the press lately that illustrate my point: "porpoise", "Hanafi". Sometimes just groups of letters have the same effect: "POW", "KCIA". Sometimes the word can mean sociological problems or a whole approach to politics: "hawk", "dove". You only have to mention the words "wife" or "patriot" to conjure up a certain feeling in people. The words "detente" or "Watergate" tell a whole story just in the saying of the word.

I think we are going to be hung up on one word forever as long as we retain control over the Panama Canal. It is this word that our chairman has chosen to work into the title of this series of hearings—"vital." As I mentioned yesterday, it comes from the Latin root word, "vita", life.

Does this Canal have anything to do with the life existence of the United States of America or, in a broader sense, the free world?

Many people said yesterday, in spite of the title of the hearings, they did not think the Panama Canal was vital to the United States of America; it had nothing to do with our life or our existence.

But then one could also question if New York City is "vital" to America. I think the answer would be "no". If New York were suddenly incorporated into Canada the U.S.A. would continue to exist. It, like the Panama Canal, could be lost to the U.S.A. without the immediate extinction of our Nation. But, New York, the largest city in the Western hemisphere, in terms of commerce at least, and communications impact, is still vital—in the sense the Panama Canal is—to the United States of America. The nation would sorely miss it and its loss could spell disaster farther down the road.

I believe the Panama Canal is vital to the United States, and the more I research that, the surer that belief is.

Now, General Graham, may I ask how many years you have worn your nation's uniform?

General GRAHAM. Sir, I have 33 years total, 28 as an officer.

Mr. DORNAN. That is exactly how many years General Dennis McAuliffe told me he had spent in the service of his country wearing our uniform when I met with him in February down in the Canal.

Would you say in all of your 33-year period of service, whenever you had done any research or heard about the Canal or knew of some brother officer being stationed down there at Albrook or Howard Air Force Base, that you had ever considered the Canal as anything but vital in the sense of that word as we accept it in military usage?

General GRAHAM. Sir, as an aviator I have certain prejudices that may have led me away from looking at surface routes of transportation as being vital.

Mr. DORNAN. We feel refueling bases are important to pilots, though.

General GRAHAM. Yes, they are indeed. I have not considered the Panama Canal, no, sir, as a vital installation. I use the word "vital" very carefully in the strict context that you defined it, sir, as necessary to the survival of our country.

Mr. DORNAN. Then let me ask you a partisan question from an Air Force point of view as an Air Force fighter pilot myself.

Is Strategic Air Command vital to the United States of America?

General GRAHAM. I believe it is, sir, in the deterrence which it provides.

Mr. DORNAN. The Edwards Air Force Base area, would you say that was vital to air progress in our nation?

General GRAHAM. No, sir, I would have to look at an installation, even of the magnitude of the Panama Canal, as being a useful and helpful major asset but not as vital to our security.

Mr. DORNAN. Do you think that these naval admirals whose letter I read earlier might look at the Panama Canal, given, as they said, it's importance in the shifting of naval power from one of the two major oceans to the other, as being as vital to them as the Strategic Air Command is to an Air Force officer?

General GRAHAM. I believe that is possible, sir.

Mr. DORNAN. How woud you describe, yourself, that word "vital" that you have applied to SAC?

General GRAHAM. When I describe a defense-related asset as being vital, its loss would mean the loss of this country.

Mr. DORNAN. In other words, something involving our very existence?

General GRAHAM. Our very existence, yes, sir.

Mr. DORNAN. Could you name two other assets of this country—you have already named Strategic Air Command—two others that you would consider vital?

General GRAHAM. In the context that we are talking, sir, I would have to break the Strategic Air Command into two of those and consider the three legs of the Triad, the deterrent Triad, the

submarine-launched ballistic missiles, the MINUTEMAN force, and the SAC bomber force, as being vital.

Mr. DORNAN. You mentioned submarine-launched missiles as being one of the three things vital to this nation. All of the missile carriers, POLARIS, POSEIDON and the TRIDENT, when it comes on the line, can transit the Canal when we need them to, can they not?

General GRAHAM. Yes, sir, they can transit. They have to surface, as I understand it.

Mr. DORNAN. Right. Now if I may return to the example I used of New York: you could not apply to any American City the word "vital", given the narrow definition you have given it—Pittsburgh, Cleveland, New York City, Los Angeles?

General GRAHAM. Certainy some, such as New York, are much more important than others, but vital, no, sir. I think we could lose cities.

Mr. DORNAN. Right. We could also apply that to States actually?

General GRAHAM. Yes, sir.

Mr. DORNAN. Even a State as large as Alaska, even given the incredibly valuable Prudhoe Bay oil finds up there (keeping in mind that we see that word "vital" applied to energy sources constantly and you see it applied a lot to the Alaskan North Shore area) you really could take any State and remove it from the whole, could you not?

General GRAHAM. Yes.

Mr. DORNAN. Given this narrow definition.

All right. I think the problem we get into is when one start clumping States together into regions, then you get a lot of trouble when you start talking about vital.

I would say, following your line of reasoning, whether it is Guantanamo Bay, naval facilities at Pearl Harbor, or our eight remaining shipyards or naval air bases, it is very difficult to isolate one and call it vital. We are just not sure of how many we can lose before it does become vital.

Would you say if you were to take 20 of the most important military installations in the world that the Joint Chiefs of Staff would be inclined to include the Panama Canal in those top 20?

General GRAHAM. Sir, that would be pretty much speculation on my part. I would not want to speculate on that being in the top 20, sir.

Mr. DORNAN. All right.

Mr. DORNAN. Let me, in one final area, deal with personalities. Democratic Senator Daniel Moynihan said, when he left the U.N., that the number of free nations in the world was down to about twelve or less. At other timnes, he was more generous and said two dozen—each of them vital to the free world—and we are down to that small number.

Each one of their heads of state, a human being, is vital to discourse among nations. I think since our President is called the leader of the free world, that he is in a vital position. And certainly most of the politicians, every one of the 535 elected people on this Hill, likes to think he is in a vital position.

With this in mind, would you say the life of the President of the United States is vital to the survival of our nation?

General GRAHAM. No, sir. I define vital in this context as relating to the survival of our nation, and I wouldn't relate this to the life of the President. His successor is defined in law, and it has happened fairly recently.

Mr. DORNAN. That is a fair statement. The world has been amazed how effortlessly the reins of government were passed on when the tragic assassination of John F. Kennedy took place.

Well, I think if you will just look back over our last few minutes of discussion here, the word vital, if it is narrowly interpreted, comes down to very, very few things: maybe the strategic umbrella of Triad that keeps our society from being attacked and ensures the existence of the free world, and maybe the balance of the sun or the earth upon its axis. But really very few things.

So I think that all of the testimony yesterday and today which rejects the word vital as applied to the Panama Canal, is a very subjective analysis, and I think the same would be the case with whatever word we apply, "strategic", or whatever.

I appreciate your statement because I think you have emphasized, have you not, that the Panama Canal is very important to the United States of America, whether it is 25 years ago or today?

General GRAHAM. Yes, sir.

Mr. DORNAN. There is one thing I would like to ask you, as an Air Force officer. In any conflict taking place in South America, given the instability of the Caribbean region which adjoins the eastern side of the whole Panamanian Isthmus, would you not say Panama, with fixed land bases, is as important to the transit of our aircraft on a north-south axis, as the Azores base was to the east-west transit of supplies to Israel during the Yom Kippur War?

General GRAHAM. Sir, I can't put the two in the same context. As long as we maintain good relations with other Latin American and Central American countries, in stating our interests and the defense interests in those Latin American countries over the past few months and the review that the Administration has given each country, the Defense Department has been very careful to introduce into each statement of interest in the country our need to maintain friendly relations with the country in order to be able to use the airfields, military facilities and sea lines of communication.

Mr. DORNAN. Admiral Moorer, in this 5-page statement I have put in the record, said at one point in speaking about the importance of controlling the physical land-based resource of the Canal, "Surrender of U.S. sovereignty over the Canal Zone would inevitably lead to the transformation of the entire friendly character of the Caribbean and the Gulf of Mexico. Everything would depend on the attitude of those who held sovereignty and ownership."

Now, is it not the case that between Brownsville, Texas, the southernmost point in the U.S., or the San Diego area, and any temporary base we might have in the inhospitable area of the Antarctic, the last land base over which we have total control is in the Canal Zone. Is that correct?

General GRAHAM. That is correct.

Mr. DORNAN. Whether or not a friendship remained with any one of the South American countries, according to Admiral Moorer, there is no substitute for the ownership of the territory and the ability to control it or deny the waters and the air space in the area of military affairs. You wouldn't quarrel with his quote there?

General GRAHAM. No, sir, no substitute.

Mr. DORNAN. Thank you very much, General; I appreciate your testimony.

Mr. METCALFE. Thank you. General, I have just four quick questions I would like to ask you.

Is there any situation you can think of where the control of the Canal, as opposed to access to the Canal, is essential to the U.S. to meet its defense commitments?

General GRAHAM. I have considered this, Mr. Chairman, at some length, and, as long as the treaty provisions provide for adequate U.S. access and use, it does not appear that control would serve us to good purpose.

Mr. METCALFE. Thank you.

General, it seems apparent that the Canal can function without difficulty in a nonhostile environment. If this situation should change, could the Joint Chiefs of Staff (a) guarantee the defense of the Canal and (b) at the same time, guarantee full operation of the Canal?

General GRAHAM. Sir, we can defend the physical entity of the Canal and the Canal Zone, but we cannot guarantee the continuous operation of the waterway.

Mr. METCALFE. What would the Joint Chiefs of Staff need by way of men and materiel to guarantee the defense of the Canal from a full-scale attack? Have you answered that question?

General GRAHAM. Yes, we feel that it would take a substantial number of troops on the order of a full Army Corps, which is normally three divisions with associated air and naval support, in order to defend against a full-scale attack.

Mr. METCALFE. We have talked about full-scale attack. What about guerrilla attacks if that could that be considered as a full-scale attack?

General GRAHAM. I would not consider it so in the order of magnitude of the troops required to defend against it, no, sir. The guerrilla attacks normally can be contained with substantially less men than I have just described. We usually try to gain a 10-to-1force superiority ratio over a querrilla force because of the support they acquire from the countryside and their method of operations.

Mr. METCALFE. General, thank you very much for participating and spending the time with us. We appreciate your being here and lending us the benefit of your wisdom. Thank you very kindly.

I now call upon Colonel John Sheffey, of the U.S. Army, Retired, Executive Vice President of the National Association for Uniformed Services, and management consultant Mr. Robert G. Cox who will now serve as a panel.

PANEL III - MILITARY: STATEMENTS OF COLONEL JOHN P. SHEFFEY, U.S. ARMY (RET.), EXECUTIVE VICE PRESIDENT, NATIONAL ASSOCIATION FOR UNIFORMED SERVICES, AND ROBERT G. COX, MANAGEMENT CONSULTANT

Which one of you gentlemen chooses to go first?

Colonel SHEFFEY. Mr. Chairman, it is a pleasure to be here.

Mr. METCALFE. Good to see you again.

Colonel SHEFFEY. I have had the privilege of testifying in this position when Mr. Garmatz was chairman of the full committee and Mrs. Sullivan was in your shoes, and then with Mrs. Sullivan as full chairman and Mr. Murphy was in your position. It is a pleasure to see you, and I hope you will be chairman of the full Committee someday.

Mr. METCALFE. Thank you.

STATEMENT OF COLONEL P. SHEFFEY

Colonel SHEFFEY. You have outlined my experience. I have enjoyed the privilege of working on the Panama Canal more than 15 years in government agencies and was on the treaty team until 1974. I have been invited to testify as to the vital military and strategic interests of the U.S. in the Panama Canal. Please understand that my statements are based upon official positions taken by the Department of Defense in 1970, when I was Executive Director of the Canal Study Commission, and I have a fairly good knowledge of subsequent official developments, but I have no official capacity today, and I emphasize that I speak only for myself in response to the questions you have given me.

Your first question was, of what importance is the role of the Panama Canal and/or Canal Zone in the strategic and tactical mobility of U.S. armed forces, especially naval forces?

This is a question that was studied exhaustively by the Department of Defense for the Canal Study Commission and more or less continuously ever since for the treaty negotiators. The finding reported to the Canal Commission by the Department of Defense in 1970, that I believe remains valid today, was quite simply stated: "A transisthmian canal, either lock or sea-level, is of major and continuing importance to the national defense of the United States."

The reasons for this are quite obvious, and General Graham has covered them quite adequately. I will try to extend his coverage a little bit.

The U.S. has commitments in five oceans and a 1-1/2 ocean Navy. Most of the supplies for logistic support of U.S. forces in our three Pacific wars since 1941 went through the Panama Canal. Nearly all of the assault landing craft for our threatened invasion of Cuba went through the Canal and made the eyeball-to-eyeball confrontation with Russia credible.

Since its opening, the Canal has been a prime consideration in the planning for and accomplishment of the safe and timely movement of naval units between the Atlantic and Pacific Oceans. A saving in distance of approximately 8,000 miles is realized by Canal transit, versus rounding Cape Horn, in the deployment of ships

from one coast to the other. A time saving of up to 30 days can accrue for slower ships and at least 15 days for fast ships (20 knots). The capability to shift rapidly naval power between the Atlantic and Pacific Oceans presents a significant advantage to the country controlling the Isthmian passage. I might add it tends to increase the effectiveness of our naval forces by a very significant percentage.

Our world-wide contingency planning would require an increase in the active naval forces if we were denied the flexibility resulting from our ability to move naval vessels quickly from the Atlantic to the Pacific. If the active naval force level cannot be increased, the alternatives are to accept increased reaction time which could result in increased losses to our naval forces or at least in accepting greater risk of increased losses.

The savings in steaming time and distance resulting from use of the Canal during World Wars I and II by both naval and logistic support forces produced the important end benefit that ships could be at sea for the shortest period of time necessary to accomplish their mission. By eliminating the necessity of the long voyage around Cape Horn, the submarine operating area along the northeast coast of South America was bypassed and the necessity for antisubmarine warfare operations in the area was removed. It appears reasonable to assume that an advantage of this nature also would occur in future military operations in which the enemy has a significant naval capability.

The real importance of the Canal, however, is in logistical support of military operations in the Pacific area. There is no alternative to surface ocean transport in sight for 90 percent of the tonnages that would be required in a future overseas war. We do not have the port capacity on the West Coast to support even a Vietnam-sized war from the West Coast, and we do not have the means to support a Pacific war by sea transport around South America or Africa. It would require twice as many ships and twice as much materiel in transit to provide the same daily deliveries on the far end without the Canal as with it. We have neither the ships nor the supplies available.

Your second question was, of what significance is the Panama Canal and/or Canal Zone as a logistical focal point for U.S. defense?

The answer is the Canal Zone is a very valuable logistical base for operations in Latin America, the Caribbean, and the southern Pacific. It has the only major ship repair facilities within 1,600 miles on the Atlantic side and 2,500 miles on the Pacific side. It has the only U.S.-controlled air base within a thousand miles. It is a military communications and transportation crossroads for the hemisphere. It contains the only existing transisthmian pipelines for ship bunker oil and aviation fuel. In short, it is the only existing U.S. logistical base of any significance south of the U.S.

Your third question: Which military contingencies exist for which the use of the Canal or Zone would be vital? For which would it be necessary? For which contingencies would it be useful?

A definitive answer to this question is clearly not possible. The Canal and the Zone have been extremely valuable in every war the U.S. has been in since 1914. Each of these wars would have taken a

different course or a different timetable without it. It is not vital, in the sense that the survival of the U.S. might depend upon it, but its existence has contributed immeasurably to the success of U.S. military forces and directly or indirectly saved thousands of U.S. lives and billions of U.S. dollars in the process.

Question No. 4: How do you assess the vulnerability of the Panama Canal, and how does that vulnerability relate to the Canal's operation and defense for various scenarios for hostilities?

Like General Graham, I answer that, within the bounds of practicable costs and defense force deployments, the Canal is probably indefensible against interruption by military attack, guerrilla action, or sabotage. Adequate defense forces on site probably can limit these interruptions to short periods, although there can be no certainty of this. The only militarily sound assumption for the U.S. to make is that in the absence of adequate defense rights and effective U.S. defense forces on site, the Panama Canal will be denied to the U.S. in an emergency. Although no arrangement can ensure the uninterrupted operation of the Canal, the chances of maintaining the Canal in operation with U.S. defense forces on site are far better than in their absence. One needs only to look to the historical examples of the denial of U.S. access to Berlin, the closure of the Suez, and the closure of the NATO line of communications across France to obtain a measure of the endurance of rights dependent upon goodwill.

Your fifth question: What would be the effects on the successful accomplishment of the missions of the U.S. Armed Forces if various military activities now carried out by Southern Command forces in the Canal Zone were relocated? What would be the effect on the training missions now carried on in the Zone if Zone training forces and schools were relocated?

I believe the relocation of these activities would be moderately disadvantageous and extremely costly for the U.S., but the activities could be successfully carried out elsewhere. I hope there will be time to elaborate on this, because this is an overly simple answer.

Your sixth question was, how do you view the Canal Zone as a focal point for the U.S. defense assistance program for Latin America?

My answer is the Zone probably is the least costly and most efficient focal point, but the program could readily be managed from Washington.

Your seventh question: How do you relate the various aspects of U.S. military involvement and control in the Canal Zone to what you perceive as the foreign policy objectives of the U.S., and this, I believe, is the critical question.

The U.S. military presence in the Canal Zone and U.S. control of the Canal poses a problem for the U.S. for which there is no enduring solution that would fully satisfy both Panama and the U.S. No conceivable treaty can fully serve U.S. interests while accomplishing our foreign policy objectives of meeting Panama's aspirations and eliminating the image of colonialism. If we continue to insist upon treaty rights to guarantee unilaterally that the Canal will be properly operated, defended, and always available to us in peace or war, we must accept a huge burden of international

criticism and, most likely, occasional bloodshed in Panama, as we have experienced in the past. If we meet all Panamanian and Third World desires by withdrawing entirely, Cuban and Russian meddling in Panama are a certainty, as is political or other type denial of the Canal to the U.S. at some critical moment in the future. There should be no illusions about this. Latin America has serious and growing problems. I believe that further attempts at exploitation of these problems by the Communist powers are inevitable and will increasingly threaten U.S. interests.

Equally intelligent and patriotic men disagree on what course best serves U.S. interests in Panama. Military men lean toward paying the political price of maintaining positions of strength, for the sad lessons of history tell us that we will surely need them some day. Our Foreign Service professionals put great value on international goodwill and sincerely believe that U.S. interests, including defense interests, would be better served by departure of the U.S. forces from Panama. The only feasible course for the U.S. to follow, in my judgment, is one that maintains the U.S. right to protect its national security interests in the Canal but otherwise meets Panamanian aspirations.

I believe that the U.S. should agree to give up much of the Canal Zone and eventually turn operational control of the Canal over to Panama, but we should insist on permanent, irrevocable, and unambiguous rights to ensure the continued operation and defense of the Canal in any circumstances whatever. Panama objects to this, but it is the price the U.S. should demand for the enormous gift of the Canal and most of the Zone. A great power has to bear the burden of criticism that protection of its interests induces. In spite of the sound and fury, the world accepts this reality. I do not believe that anything we do in Panama will have any real effect on our interests elsewhere. Our actions should be based on what we believe is fair for Panama and important to our future security—not on what our foreign critics believe. Our defense interests in the Canal are critical and enduring. The goodwill that might be generated by relinquishing them would be ephemeral.

Your eighth question: What effect does, and will, increased air transport capability to move U.S. troops and the development of the "two-ocean navy" have on the strategic role of the Canal?

I believe none, and you can see that from the answer to question No. 1, above. The strategic role of the Canal is more important today than it has ever been in the past. Our worldwide commitments are greater, potential trouble spots are more numerous, and our military resources are inadequate for many contingencies even with the Canal, much less without it. There have been great political pressures on the Joint Chiefs of Staff to downplay the military importance of the Canal, and they cannot defy Presidential policy. I just hope they will be able to hold to the defense rights I have outlined, for I believe we should accept failure of the treaty negotiations and the very serious potential consequences thereof rather than retreat from this position.

You ask does your view of the geopolitical interests of the U.S. in the years to come affect what I believe the Canal's future status ought to be. I believe the answers to the other questions answer this one.

Thank you, Mr. Chairman.

Mr. METCALFE. Thank you, Colonel Sheffey.

Now we will hear from Mr. Cox.

STATEMENT OF ROBERT G. COX

Mr. Cox. Mr. Chairman, and members of the subcommittee, I would like to ask that the record show that I do not represent the firm of Ernst & Ernst here today. I represent only myself. I am here to give you my opinion as a private citizen concerning the military interests of the United States in the Panama Canal and the Canal Zone.

May I begin by citing the basic facts upon which my testimony will be based.

1. The right of the U.S. to defend the Canal and the Zone is well established in international law.

2. The Canal has two related military uses: for surface transit of combat forces between the Atlantic and the Pacific Oceans; and for similar movement of logistic support.

3. Thus, the Panama Canal is a military asset. We cannot assign a specific asset value to it because we cannot accurately predict the kind of future military situation we may be involved in, and because the Canal's utility depends in part on the type, duration, scale, and location of future engagements.

4. Its military value is influenced by the fact that the United States, since World War II, has maintained separate fleets in the Atlantic and the Pacific. While the Canal is still capable of contributing to the U.S. Navy's mobility, it cannot provide passage for the Navy's 13 attack aircraft carriers nor its four antisubmarine aircraft carriers; and nuclear submarines cannot transit the Canal without surfacing. These vessels are the backbone of our naval forces. Even the new TARAWA class amphibious assault ships can barely fit into the locks after removal of catwalks and antennas from its sides.

5. The logistical utility of the Canal is highest in a prolonged conflict in the Pacific basin. However, during the Vietnam War the largest proportion of sea-lifted materiel to use the Canal route was 19 percent during 1968.

6. The Canal has never been attacked or sabotaged. However, in January 1964, Panamanian civilians attacked the Canal Zone and 24 people—Panamanian protesters and American soldiers—were killed. More than 400 Americans and Panamanians were wounded. Since that time, the United States and Panama have been trying to negotiate a Canal defense-and-operation partnership. Expectations are high in both countries that we may, at last, be close to final agreement.

7. The United States has had defense forces stationed in the Canal Zone continuously for about 70 years, through two world wars and two major Far Eastern conflicts. Those forces have never been used against anyone except Panamanians.

8. In a world of accelerating and violent change accompanied by increasing uncertainty, no nation can be expected to forfeit military advantage without commensurate incentive.

9. The United States Government is confident that the Canal Zone can be defended without the assistance of any other nation.

10. Defending the Canal is a more complex problem than defending the real estate of the Canal Zone. The Canal would not be a military asset if it were closed to shipping and might, in fact, be a liability.

This would be my commentary on those facts:

I believe there is a possibility that an attempt will be made sometime during the last quarter of this century to close the Panama Canal by military or para-military action. I doubt that we can entirely eliminate the possibility during that period. But we can, by our actions, greatly increase or reduce the probability. To decide what specific moves would favorably influence this contingency, we should consider *how* the Canal might be attacked and *by whom*.

Possible means of attack are almost as diverse as the imaginations of potential attackers. In my opinion, we can identify 13 major possible actions which could lead to closure of the Canal. They could come singly or in combination. I would rank them in the following order of descending probability: 1) sabotage of power supplies or lock machinery; 2) small arms, mortar, rocket, or artillery fire against ships in transit, or against the locks; 3) clandestine mining of the waterway or its approaches; 4) drainage of Gatun Lake through breach of locks or dams by common explosives or unsophisticated weapons; 5) attempted interruption of operations by seizure of hostages of high rank, or in large numbers, either aboard ship or on shore; 6) attack against the locks, or on shipping in the channel, by low-performance aircraft; 7) generalized attack by armed civilians or guerrillas against Canal Zone installations, possibly joined later by regular infantry units; 8) disruption by massive civil disobedience or protest at or near the locks, possibly accompanied by a strike of Panamanian employees of the Panama Canal Company, who comprise 80 percent of the Company's labor force; 9) scuttling of a ship in the locks or channel; 10) limited surprise attack, or raid, by infantry troops on critical Zone installations with the assumption that generalized civilian or guerrilla action would follow; 11) missile-delivered nuclear weapon; 12) conventional aerial bombardment; 13) naval blockade.

The effect on Canal operations could vary: from a few hours of suspended transits in the case of small arms interdiction of ships; to two years of closure if Gatun Lake were drained; to permanent destruction by a nuclear warhead.

While the first four or five options are more likely today, other means might displace them, depending on developments in international relations. The last two options, aerial bombardment and naval blockade, are theoretical and of negligible probability in foreseeable circumstances. However, the Canal is vulnerable to all these options. Even before nuclear weapons and missile technology, the Panama Canal was one of the least defensible waterways in the world. It remains so today.

Who would attack the Canal? Alternative answers to this question are more limited in number, but in some ways more difficult to contemplate. The United States, after having been at war during 17

years out of the last 35, is at peace today with every nation. We hope and expect to remain at peace with the world. And yet we can consider our defense only by anticipating future adversaries, their capabilities, and their possible intentions.

Some people still think of the Panama Canal as vital. Actually, its sudden loss would make us very angry, but it would not cripple the United States. It would probably not even seriously inconvenience us as a nation. We have noted its military limitations and vulnerabilities. In economic terms, less than one percent of American gross national product would even be affected by its closure, and most of the affected products would simply find other available modes or routes of transit. An adversary would recognize this and would balance it against the costs and risks of attack.

We can identify two possible sources of a future attack on the Canal. They are: 1) the armed forces of the Soviet Union; and 2) the people of Panama, with or without the active participation of their government. For the past 30 years, the Soviet Union has been our principal competitor in the world arena. We have moved toward military confrontation with that country more than once. Despite our efforts to live peacefully together, a U.S.-Soviet conflict in which the Canal would become a target cannot be entirely discounted. Ironically, the more probable source of trouble would be the people of Panama, with whom we have had an intimate and symbiotic relationship over 70 years.

Since the Soviets know that a move against the Canal would be an act of war with minor military yield, they would attempt to destroy it only as a part of a comprehensive attack on the United States in which dozens, if not hundreds, of other targets would inevitably take precedence. The Panamanians, for their part, have another kind of disincentive to close the Canal for any extended period. Its elimination as a reliable international public utility would mean sudden and catastrophic loss of their primary national resource, a single enterprise which accounts for 13 percent of Panama's gross national product. This loss, plus the financial and commercial reverberations from it, would plunge Panama into economic disaster from which its recovery could not be foreseen. Closure of the Canal for shorter periods would have less severe, but still traumatic, consequences.

Thus, the Russians would attack the Canal only as a secondary target, and Panamanians would attack it only as a move of desperation. The Panamanians would have, presumably, a wider range of attack options available, including options 1 to 10 on the list above, given sufficient courage and unity of purpose. The Soviets might tend to opt for a missile-delivered nuclear warhead, although some of the other options are available to them or their agents.

Arguably, Cuba could be a third potential attacker, but it is difficult to imagine such a Cuban initiative without the support of the Soviet Union, given the predictable response of the United States. The Soviets would know that we would hold them responsible for sponsoring such an act, and they could afford to attempt it only as part of a general war, in which case they would have more reliable delivery systems at hand than the Cuban armed forces.

Therefore, short of World War III, the people we may have to defend the Canal against are those who need most to keep it open, operating, safe, and reliable. If the 13-year effort to conclude and ratify new treaties on Canal defense and operation were to collapse so near its expected conclusion, it would be a stunning psychological blow to the Panamanians. A move of desperation on their part would be conceivable.

We are entering a period of delicate relations with Panama in which defense of the Canal will be an increasingly important issue. Here are the choices we face.

Alternative A: Partnership with Panama is our first major alternative in selecting modes of defense. The fact that four American Presidents, two Democrats and two Republicans, have actively pursued this alternative is, in itself, persuasive. Such an alliance could take into account the basic objectives and aspirations of both countries: that the Canal be kept open with reasonable tolls, efficient, and neutral; that the U.S. have the right and duty to defend it; and that the territorial integrity of Panama be recognized through U.S. withdrawal from the Zone, except for necessary defense bases.

The Chairman of the U.S. Joint Chiefs of Staff has stated his belief that, even with sufficient forces, we cannot unilaterally assure that the Canal will remain open. He concludes that a partnership with Panama is the logical context for its defense. However, this choice depends partly on a constructive Panamanian attitude during the remaining negotiations, as well as the Senate's willingness to ratify new treaties, if they are ever signed. In the absence of a defense partnership with Panama, we have three remaining choices.

Alternative B: We could withdraw from the Canal Zone and cede the Canal to Panama. As in the case of the Suez Canal, world shipping would learn to live without the waterway until the Panamanians learned to operate it.)Less than 5 percent of world trade by volume, and little more than 1 percent by value, relies on the Panama Canal.) The U.S. armed forces would adjust rapidly and with characteristic resourcefulness. However, in my opinion, this alternative is not presently acceptable to the American people and is therefore politically expensive, if not infeasible. In addition, the U.S. has an international obligation to keep the Canal open, and any precipitated closure woud seriously disrupt the ocean-borne commerce of Nicaragua, El Salvador, Ecuador, Peru, Chile, Colombia, Guatemala, and Costa Rica, aside from the damage it would do to Panama.

Alternative C: The status quo, business as usual with minimal, or token, combat forces in the Zone would be another possible course of action. Simple inertia and preoccupation with other, more urgent matters might lead to this choice. In my view, it would be the most dangerous course. It gives the appearance that the U.S. is weak and domineering at the same time. It invites attack and neglects defense.

Alternative D: The most prudent and practical alternative, in the absence of a new U.S.-Panamanian partnership, would be to harden the Zone with modern and sophisticated fortifications and reinforce

the combat troops now there. To increase the effectiveness of this course of action, we could also withdraw military personnel not essential to Canal defense, military dependents, civilian American employees of the Panama Canal Company not essential to Canal operations, and their dependents. This would automatically reduce the visibility of those U.S. Government enterprises of which Panamanians are most critical: golf courses, post exchanges, theaters, commissaries, swimming pools, bowling alleys. The Corps of Engineers could also develop improved technology, contingency plans, and training for the rapid repair of dams and locks. This alternative would be expensive and could demand heavy sacrifices beyond money. The President would be well advised, before embarking on reinforcement and fortification, to seek a national consensus that the Canal Zone is worth that cost.

In summary, Mr. Chairman, the Panama Canal, as a military asset, is of tactical and logistical use to the United States. Its accessibility to many forms of attack and the latent hostility of its environment, present us with difficult choices in providing for its protection. The first step in making those choices is to accept the facts of the Canal's vulnerability, its limitations, the heavy cost of its defense without Panamanian cooperation, and the possibility that the United States may not be able to keep it open unilaterally. This decision is of sufficient importance that the American people should share with their leaders the responsibility for making the choices.

Mr. METCALFE. Thank you, Mr. Cox.

I would like to state that we are under a time restraint and hopefully we can conclude these hearings at a quarter of four because of other commitments.

Colonel Sheffey, you mention in your statement that you hoped you would have time to elaborate on question 5. If it won't take too long, would you like to do so now?

Colonel SHEFFEY. Yes, Mr. Chairman. The problem of relocating our troops and schools and the forces involved in the activities other than Canal defense is primarily one of money. I am convinced that you could duplicate in Puerto Rico, for example, most of the things you have in the Canal Zone except for the jungle training facilities and operate effectively there, but the cost would run into hundreds of millions of dollars to do this.

The U.S. commanders in SOUTHCOM have unanimously believed that the presence of these activities in the Canal Zone, right in the heart of Central America and close to South America, was, in itself, a great asset to the U.S.

As you are well aware, the relationship between the military of our countries, the Latin countries and the U.S., has been excellent in nearly every country for generations, and it is probably because of the common bond of these schools and the common bond of military people. The U.S. commanders have felt that moving the school away from the Canal Zone would signal a change in the level of importance we assign to that activity and make it more difficult to conduct the operations.

So I would like to leave this question with the thought that the cost of moving it is probably more than the Congress will appropri-

ate, and the problems therefore are probably insurmountable, but if costs were no object, I am quite sure the activity could be done effectively elsewhere.

Mr. METCALFE. It has been stated, and Mr. Cox mentioned it in his prepared statement, that a treaty is essential in keeping commitments of four successive Presidents of the U.S. Do you consider the current posture of the treaty negotiations consistent with and in keeping with the commitments of prior administrations?

Colonel SHEFFEY. Mr. Chairman, having participated in this activity since it began, and it began with President Kennedy making the decision to postpone the negotiations after the President of Panama called on him in 1961. At that time President Kennedy made the tentative decision that there must be a new treaty with Panama. The sea-level canal study grew out of that in an effort to determine what our long-term interests were down there and to determine whether we could build a canal somewhere else.

The riots of 1964, shortly after President Johnson took office, forced a change in the U.S. timetable. President Kennedy wanted to get the canal study behind us as one of the bases for making the decision on a new treaty. President Johnson, faced shortly after he had taken office with this very embarrassing and difficult situation in Panama, decided to enter into treaty negotiations immediately, while the Canal study was going on.

The Joint Chiefs and National Security Council at that time agreed upon the minimum U.S. interest that must be maintained in Panama in any new treaty, and, at that time, President Johnson, of course, supported them. The steady erosion of the position taken at that time has more than carried out the commitments made at that time.

I think it is important to recognize that every President, every Secretary of State, every Secretary of Defense, and every Chairman of the Joint Chiefs since Eisenhower's time have agreed there must be a new and generous treaty with Panama; that the Treaty of 1903 was out of date.

The problem has been that the Panamanians have increased their demands as they attained each level of surrender of U.S. rights and powers down there, and the situation is today far, far more generous to Panama and far more risky for the U.S. than was planned in 1964.

Mr. METCALFE. Colonel Sheffey, you indicate you anticipate trouble in Panama whether or not a treaty is entered into. Are you suggesting that a treaty is only buying time? If so, will our position be strengthened or weakened by giving up our current treaty rights? You can probably answer that in one word, even both of those questions.

Colonel SHEFFEY. Sir, I think a generous new treaty to Panama is essential, and we are certainly going to have serious difficulty down there if we don't have one. The question, I think, is the extent of the maintenance of U.S. defense rights in that treaty, and I don't know at this time what the terms are that are being offered to Panama. I merely have outlined what I think the terms should be.

Mr. METCALFE. On page 2 of your prepared statement, you state that the U.S. had commitments in five oceans and a one-and-one-

half-ocean Navy. Is control of the Canal essential to meet those commitments, or would guaranteed access to the Canal permit us to meet those commitments?

Colonel SHEFFEY. Sir, control is, I think, clearly not absolutely essential. Guaranteed access is not enough. We must have the right to guarantee the availability of the Canal, which is a different matter, and that means U.S. defense forces on site with the rights, the equipment, and the forces to limit damage.

Let me explain carefully what I mean by that. The greatest danger to the U.S. is an attack on the Canal to drain Gatun Lake. The lake is about 87 feet above sea level and the total rainfall in the area would not refill it in less than two years if it were drained, so the only attack on the Canal short of nuclear attack that could seriously harm the U.S. would be one that successfully blew the dams or locks and let the lake drain.

It is, I think, well established in engineering studies and defense exercises that the forces on site could prevent the drainage of the lake. They couldn't prevent the attack on the locks that opened them and started the water flowing, but there are means of stopping it quickly. If we were not present with the equipment and forces to do that, the Canal could be put out of operation for two years by a very limited attack.

Mr. METCALFE. Mr. Cox, would you like to comment on that question? Shall I repeat it or do you remember it?

Mr. COX. I remember it, Mr. Chairman.

I would concur with Colonel Sheffey on that last point.

Mr. METCALFE. Mr. Cox, on page 2 of your prepared statement you state that "During the Vietnam War, the largest proportion of sea-lifted material to use the Canal route was 19 percent during 1968."

My question is: I assume, then, that the other 71 percent of the sea-lifted material to Vietnam was by other routes. What were those other routes, Mr. Cox?

Mr. COX. Those would be from West Coast ports, Mr. Chairman.

Mr. METCALFE. I have no further questions.

Colonel SHEFFEY. May I add to that? I think this is a question that requires a lot more detailed knowledge to understand.

The problem with supporting a war from the Pacific Coast is limited port capacity. There is only one port on the West Coast of the United States where we can load bombs and ammunition, at Fort Ord, California. You cannot load bombs and ammunition just anywhere.

Mr. MELCALFE. Where is that?

Colonel SHEFFEY. Just north of San Francisco, Monterey. You are certainly familiar with the explosion in Halifax in World War I that leveled the city and the other explosions of ammunition ships that have taken place.

The critical problem ability of the United States in supporting any major war in the Pacific is inadequate port capacity on the West Coast. There are other problems, but that is the main one.

Mr. METCALFE. Thank you.

Mr. Dornan, you have the time.

Mr. DORNAN. Thank you, Mr. Chairman.

Colonel Sheffey, I want to come back to this word "vital" because I think it is vital to these hearings. Do you think General Motors as part of our automotive triad, with all due respect to American Motors, is vital to the United States of America?

Colonel SHEFFEY. Mr. Dornan, I listened with great pleasure to your discussion of the word "vital." I think I can shortcut your question, if you will let me, by this simple statement.

The Canal is extremely vulnerable to interruption and some forms of destruction. If it is vital to the survival of the United States, we are leaning on a very weak reed. The Canal is not vital in the terms we discussed because the United States could survive without it. I think your points were well taken in your discussion with the General.

I have illustrated it a little differently from the way you did. In negotiations they ask you, is your little finger vital? Obviously, it is not. You hate to part with it and you are not nearly as effective without it. But you admit that certainly it is not vital and they cut it off.

The problem has been throughout these negotiations that no single step in the steady deterioration of our negotiating position has ever been vital. It has been piecemeal cutoffs of very important thing.

Mr. DORNAN. Let me analyze it from a naval viewpoint.

You described us as having a one-and-one-half ocean Navy. When I frst saw that in your comments, I went back to reread if you were ascribing a more important role to the Atlantic or Pacific. I realize you said we have 75 percent of what is needed to have a good two-ocean fleet. We have roughly two thirds of what we need in the Pacific and two thirds of what we need in the Atlantic. If we are going to stay in the position of having a one-and-a-half ocean Navy, your point is that we need the Canal in moments of tension to transit ships quickly.

I see here another sort of vital triad: the Atlantic fleet, Pacific fleet and the Canal that makes possible the balancing of the scales or the shifting of the naval weight from one ocean to the other.

I could ask you, and I only ask this rhetorically, is the Atlantic fleet vital to the existence of our nation? Not at all if you can get the Pacific fleet through the Canal quickly enough and put one half our forces in one ocean.

Is the Canal more vital than the Atlantic or Pacific since it is the key to transiting ships from one ocean to the other? I would say in that context of balancing a one-and-a-half ocean Navy, the Canal would be very vital from a naval standpoint, but not so much so when you consider the ground forces we have around the world or our air power.

Let me ask you, Mr. Cox, about what I perceive at least initially might be an inconsistency in your testimony. You said on page 6, "Some people still think of the Panama Canal as vital. Actually, its sudden loss would make us very angry, but it would not cripple the U.S. It would probably not even seriously inconvenience us as a nation."

On page 1, in fact 3, you say, "Thus, the Panama Canal is a military asset. We cannot assign a specific asset value to it because

we cannot accurately predict the kind of future military situation we may be involved in, and because the Canal's utility depends in part on the type, duration, scale and location of a future engagement."

To come back to this line that it would probably not even "seriously inconvenience us as a nation", shouldn't there be a proviso saying "except when the type, duration and scale of the future engagement might make it more than seriously inconvenient."

Mr. Cox. Yes, that's why I said "probably." If we were at war with a country in the Pacific basin that could not interdict our shipping and if it were a prolonged war and if at that time the Canal were denied to us, then I think you would have a situation in which we would be seriously inconvenienced and maybe more than that. In fact, we might be in a situation conceivably where the Canal would be vital.

But I think that is a rather remote contingency in view of recent history.

Mr. DORNAN. Would you elaborate on that? Do you mean we may not follow the course we followed in Vietnam, without clear-cut objectives?

Mr. Cox. Yes, I think that's right.

Mr. DORNAN. However, might we not at some point resurrect the Monroe Doctrine if we saw another Vietnam developing on the South American Continent which might again bring the vital importance to the Canal that it had in World War I, II, and Vietnam?

Mr. Cox. Yes. I don't think we have to resurrect the Monroe Doctrine. I think it is fully effective. Cuba is an isolated exception to it.

Mr. DORNAN. One thing that fascinated me particularly when I was in the Canal Zone. Was it not giving up Guantanamo the cutting edge of Caribbean discussion rather than giving up the Panama Canal? How did Panama deserve all this discussion over vital interests and come ahead of any discussion about a 99-year lease involving Guantanamo?

Mr. Cox. I think the answer to that is that the Cubans have not been pressing us to give it up.

Mr. DORNAN That is peculiar, isn't it?

Mr. Cox. It is strange in a way, but I think when we have the benefit of historical hindsight, we will see that Fidel Castro has something in Guantanamo that he wants. That something might be hostage value. Without speculating too much on it, I think we will find that the Cubans have a purpose in not pressing us on Guantanamo.

Of course, the Panamanians have a very strong national purpose in pressing us on the Canal Zone. Anyone who loves his country can appreciate why a Panamanian would take exception to having an American colony cutting through the heartland of his nation.

Mr. DORNAN. One of the points I made to the ambassador in Panama was, and again here is the value of hindsight, if we had allowed Colombia to retain all territorial rights up to—and here you get into a geographical discussion because of the bend in the isthmus—that northern, somewhat eastern side and had allowed

Panama only to exist between Costa Rica and that boundary of the Canal that faces the Pacific, then the Canal Zone would be described as a buffer state and would bring stability to that region rather than instability.

When we built the Canal, we looked to the future of maintaining very, very friendly relations with a nation that we were in effect giving birth to. That brings me to a point that all three witnesses have mentioned today and which I spent a great deal of time looking into in Panama: our friendly relations with this country.

I believe your statement is exactly "partnership with Panama." The Colonel referred to rights dependent on goodwill. General Graham referred to the need of a friendly Panama. Let's say, using the Colonel's expression, we give them a most generous treaty which, in General Torrijos' estimation would be 23 years until Panamanian takeover.

During that 23-year period if there was some conflict where we needed to increase military troops in the Canal Zone, would Panama have a veto over that?

Mr. Cox. Well, Congressman, I don't think we know yet what the specific terms of the treaty will be, particularly in this complicated area of neutrality. General Torrijos may feel he has already given too much in tentatively agreeing to allow us to defend the Canal in perpetuity, in effect, without using those words, at any time this neutrality is threatened. But I don't think we can say at this point, because the negotiations are still in a fluid state.

Mr. Dornan. Off the record.

[Discussion off the record.]

Mr. Dornan Let me come to the point of the friendship with the Panamanian people, and their government—they are not the same thing. We are trying to deal through a one-man head-of-state government. If after the year 2000, it becomes necessary to maintain very friendly relations with the Panamanian government, will we not suddenly find ourselves forced into the position that Democrat and Republican administrations found themselves in: trying to spend money in covert or open ways to influence elections so that the government will remain friendly?

Aren't we going to find ourselves forced to become politically involved with the internal politics of Panama in order to secure a friendly government? Won't we find ourselves forced to attempt to spend millions in that way?

Mr. Cox. Well, I would hope that we would not even be tempted to do that. Our experience with covert political action has not been very good in a variety of ways. I don't think the American people take kindly to that, know that they know it has happened at some points in the past. I think that we could, over a 23-year period, work out a modus operandi with the Panamanian Government and by the year 2000 presumably it would not be General Torrijos' government.

Presumably, also, with some better examples from the United States we may have a more democratic government in Panama. I think that under those circumstances we could have an arrangement with the Panamanians that would not require us even to be tempted to think about influencing their internal affairs with money.

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I think, Congressman, it is essential that we recognize we are talking here about a situation in which we would still have a right to defend the Canal.

Mr. DORNAN. Again, you said with the Panamanian people. This is the problem when you have a dictatorship government such as Panama has. You are not dealing with the people—or their duly-elected leader, Torrijos is a dictator. Americans quite often fall into the trap of condemning the Russians when we are not talking about the people but about a government. There are ways to make an end run around the President of the United States, whoever he may be, by appealing directly to the American people because we are a democratic Republic. But Panama is not.

But whatever form of government replaces Torrijos may follow a South American pattern of going from the frying pan into the fire.

Colonel, could you comment on the political and national needs of our country to maintain friendly relations in any way we can?

Isn't it fair to assume we would be using every political pressure from the U.N. to World Bank, to loans and economic pressures, to direct the course of a Panamanian government in order to maintain friendly relations? Wouldn't that be possible if we had some sort of partnership arrangement instead of our present sovereignty?

Colonel SHEFFEY. Sir, you are asking me to speculate about something 20 years out. I can only look at history and history would say, yes, we probably would. I think the overwhelming influence here is the Panamanian desire to get full control of the Canal and to remove any semblance of U.S. imposition on their sovereignty. That means even our military presence under a generous treaty is not going to be welcome over the long term.

The Panamanian people are raised from childhood to feel that the United States has exploited them and denied them the benefits of Canal. Those deep convictions are not going to disappear with this treaty. The new Canal arrangement is not going to make all Panamanians wealthy like the Arabians with their oil.

I am deeply concerned that there is going to be great disappointment in the long run that the Canal does not solve their problems. It is just inevitable that the United States gets a measure of blame for that.

So I feel that no treaty is going to be satisfactory over the long term. I said that in my written statement and I repeat it. There must be continuing pressure from the Panamanians to get more out of the United States. That is built into their political system.

Mr. DORNAN. Mr. Cox, I understand that you commanded a platoon in Korea. That is where the "rubber meets the road", at the platoon level.

Do you think your ammunition and supplies transited the Canal incoming to Korea?

Mr. Cox. I think about 22 percent of it did. The best estimate we have is that during fiscal year 1953, 22 percent of the material that ended up in Korea came through the Canal. Of course, that could be a rather critical 22 percent.

On the other hand, I would also tell you that during the Korean War and the Vietnam War, we did have options to ship that materiel across the continental United States, bypassing the Canal.

Mr. DORNAN. We are running out of time and the chairman does have another engagement.

One final question here: In your statement you say, "There have been great political pressures on the Joint Chiefs of Staff to downplay the military importance of the Canal and they are not able to defy Presidential policy."

I have been given some firsthand testimony from the Pentagon. Some admirals are having their policy papers rejected because they are not in synchronization with Administration policy. That is a bipartisan statement. Rejections were given because of differences with President Carter's policy or President Ford's, or Secretary Kissinger's policy.

What policy are you talking about?

Colonel SHEFFEY. The pressures are both direct and perceived, Mr. Dornan. The evidence I have is from observation inside the treaty team as well as outside subsequently. I cite this: In 1964 the Joint Chiefs and the National Security Council agreed that the United States could not foresee a time when the importance of the Canal to the security of the United States would decrease. So they set at that time an objective of 100 years of continued U.S. control and defense of an Isthmian Canal.

That was accomplished by negotiating a treaty for the present Canal that lasted until 1999 and a second treaty that gave us the option of building a new Canal and controlling it for 60 more years, a total of 100 years. Those treaties were written, initialled, submitted to the Government of Panama and rejected.

That was followed by the coup down there when Torrijos displaced President Arias in 1968. We resumed treaty discussions about the end of 1970.

At this time the Joint Chiefs recognized that we almost certainly would not build a sea level canal. The sea level canal study was over and it was pretty well established that it was uneconomic and probably politically infeasible. They also recognized that 100 years of continued United States control and defense was more than the Panamanians would ever accept.

So the persuasion of the Department of State and the President was directed toward having them agree to shorten that term of U.S. control. So at that time they agreed to negotiation of a second treaty on the basis of 50 years of U.S. control. That was the guidance under which I worked for three years on the team.

We wrote a treaty in 1971 that gave us 50 more years of control of the Present Canal. The Panamanian negotiators were not satisfied with it, but they took it home to Torrijo on the grounds that that is as far as they could go with our team. Torrijos rejected it. At this time Mr. Kissinger became Secretary of State and he arranged for the resignation of Ambassador Anderson, former Secretary of Treasury, Navy and the former Deputy Secretary of Defense and put Ambassador Bunker in his place with very specific instructions to get an agreement.

He recognized quite quickly that 50 years was too long. So today we have the Joint Chiefs agreeing to 23 years.

The Canal's importance has not changed one iota in that period, yet our objectives have gone down from very extensive control and defense for 100 years down to 23 years.

Now in fairness to them, the current negotiators did substitute the concept of a neutrality treaty, a treaty separate from the Canal treaty that the Joint Chiefs, I am told, are reasonably satisfied with. I hope it meets the criteria that I think we have to have.

Mr. DORNAN. Gentlemen, I appreciate your statements and the ensuing question and answer period.

Colonel, I particularly like your statement that there is not too much we are ever going to be able to do to stop some criticism. There is one scene on the world scene that has stuck in my mind over the last few weeks. That was the fact that an acknowledged mass murderer, a Hitlerian-type brute, although in a pip-squeak way, Idi Amin, could get a standing ovation at the Organization of African Unity.

I think that one of the things we will have to live with is that people in less developed countries are always going to have a sort of macho jealousy of the more advanced societies. I think it is the plight of the rich uncle, he is never able to give enough to the nieces and nephews to not suffer some criticism. It is like part of being a GI, to put down admirals and generals behind their backs.

I think a certain amount of that criticism is human nature. We have to determine what percentage is cosmetic or natural and what percentage is really a dislike for our country by the average Panamanian citizn or citizen in any small country in the world who looks at us as a big, unmanageable brute who is corrupting their children with television violence or whatever.

I think we have to be tough about history or we may find ourselves looking at something far removed from General Torrijos getting a standing ovation from a South American organization, someone who has taken delight in thwarting not only American objectives but objectives that are good for the world.

We are not going to be loved as long as we keep enjoying the success of a free enterprise nation and what it can do for the affluence of a middle-class citizen.

Mr. METCALFE. I ask now that the record remain open and that any member of the panel or staff be permitted to write additional questions to General Graham and to Colonel Sheffey and Mr. Cox.

Hearing no objection, the record will remain open for those questions.

I regret that we have been pressed for time, but unfortunately we seem not to have enough of it.

Thank you very much, Colonel Sheffey. Thank you very much, Mr. Cox. I want to thank my colleague, Mr. Dornan, for being present and making this a successful hearing. Thank you all very much.

The session of the Subcommittee on Panama Canal will now be recessed until tomorrow.

Thank you.

[Whereupon, at 3:55 p.m. the subcommittee was recessed, to reconvene at 10 a.m., Wednesday, July 27, 1977.]

U.S. VITAL INTERESTS IN THE PANAMA CANAL

WEDNESDAY, JULY 27, 1977

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON PANAMA CANAL
COMMITTEE ON MERCHANT MARINE AND FISHERIES
Washington, D.C.

The subcommittee met, pursuant to recess, at 10:40 a.m., in Room 1310, Longworth House Office Building, Hon. Ralph H. Metcalfe (chairman) presiding.

Mr. METCALFE. The Subcommittee on the Panama Canal will come to order.

This morning we will conclude our hearings on the vital interests of the United States in the Panama Canal Zone. We will focus this morning on the subject of how the foreign policy objectives of the United States relate to the Canal and the Zone; and how these affect our international relations.

We are fortunate to have with us this morning a very distinguished panel.

We have Mr. William D. Rogers, former Assistant Secretary of State of Inter-American Affairs, as well as the former Under Secretary of State for Economic Affairs. He is a past president of the American Society for International Law and one of the founders of the Center for Inter-American Relations in New York.

Mr. Henry Geyelin is president of many foundations and institutions which deal with United States investment and trade. He is undoubtedly a top expert in the field of international investment.

Professor Yale H. Ferguson is one of the top United States scholars in the field of Latin American politics. He is the author and editor of many books and periodicals on the subject of international politics, United States foreign policy, Inter-American relations, and Latin American politics.

Ms. Virginia Prewett is a syndicated columnist with wide experience in the subject area of Inter-American relations and United States foreign policy toward Latin America. She has been a recipient of many journalistic awards for her writings, which have appeared in newspapers and periodicals such as the Atlantic Monthly, Foreign Affairs Quarterly, Reader's Digest, and the Saturday Evening Post. We are especially indebted to Ms. Prewett for accepting our invitation to appear on just a few days' notice.

Do you have an opening statement that you wish to make, Mr. Dornan?

Mr. DORNAN. Yes, Mr. Chairman, just very briefly.

Last night I was doing some research into what the American taxpayers are being asked to spend for a base on the tiny Island of Diego Garcia in the Indian Ocean: over a quarter of a billion dollars.

Of course, one of the principal reasons given for spending this large sum of dollars is the possible threat to our shipping by Soviet submarines. This same threat exists to the same —if not greater— degree on either side of the Isthmus of Panama. I recall reports of Soviet vessels steaming deeper into the Gulf of Mexico than had ever happened in the past just a few weeks ago.

For this reason I would like to insert in the record at this point the June 7, 1977, remarks of the ranking minority member on this committee, the Honorable Gene Snyder of Kentucky, which appeared in the Congressional Record. The remarks reveal his bewilderment—and I might add mine—about why we spend money to build a base in Diego Garcia when we already have a most expensive complex of bases built up in Panama, probably larger than anywhere south of the United States itself.

[Excerpt from the Congressional Record referred to follows:]

E 3564

DIEGO GARCIA, SI! CANAL ZONE, NO! PORQUE? WHY?

HON. GENE SNYDER

OF KENTUCKY

IN THE HOUSE OF REPRESENTATIVES

Tuesday, June 7, 1977

Mr. SNYDER. Mr. Speaker, I am puzzled. And I do not think I am alone in my bewilderment.

Why is the United States rushing to give away our strategic Canal Zone together with the Panama Canal that links the Atlantic and the Pacific Oceans, while rushing to complete our new base on tiny Diego Garcia island in the middle of the Indian Ocean?

I am especially intrigued by the reasons reported in the press as underlying Diego Garcia's strategic importance to us—reasons that are no more compelling than parallel reasons for not surrendering the Canal Zone to Panama.

In a Washington Post story last April 7 headlined "Tiny Atoll Is Keystone of U.S. Policy in Indian Ocean," the following two paragraphs appeared:

In arguing for the necessity of Diego Garcia, former Deputy Assistant Secretary of Defence James H. Noyes said two years ago that the Soviet Union had drastically increased the size of its naval facility at Berbera in Somalia, on the east coast of Africa.

The Pentagon's basic argument on the need for Diego Garcia is that U.S. ships are required to protect vital oil-supply routes from the Middle East and the Persian Gulf to the West. More than half of the world's seaborne oil is said to be moving through the Indian Ocean at any given moment.

Mr. Speaker, have President Carter and his White House, State Department, and Pentagon advisers forgotten that the Soviet Union is operating strategically placed submarines and other naval vessels out of nearby Communist Cuba bases—posing a direct threat both to vital shipping routes utilizing the Panama Canal and to our Canal Zone military installations as well as to our mainland?

Have the President and his advisers, in their rush to divest the American people of their strategic defenses; and their ownership and investment in the Canal Zone amounting to some $7 billion, ignored the fact that the Panama Canal soon will be transiting tankers with enormous quantities of Alaskan oil vital to our domestic economy and defense needs destined for our gulf coast refineries under the eyes of those Caribbean-based Soviet warships?

Mr. Speaker, I ask my colleagues to look harder than ever at the administration's current negotiations to give the Canal Zone and Panama Canal to Panama—a tiny country that could not even defend herself against an attack by Castro's battle-tested African expeditionary forces.

I ask my colleagues to compare this suicidal policy that would emasculate us strategically in our own backyard, in our own two contiguous oceans, with the contrary policy of going all out on Diego Garcia in the Indian Ocean on the other side of the world—in the face of the very same Soviet naval threat.

E 3583

TO BE (DEFENDED) OR NOT TO BE (DEFENDED)? THAT IS THE (PANAMA CANAL) QUESTION!

HON. GENE SNYDER

OF KENTUCKY

IN THE HOUSE OF REPRESENTATIVES

Tuesday, June 7, 1977

Mr. SNYDER. Mr. Speaker, have we in the Congress been had?

For several years, the American people have been bombarded with State Department propaganda that the Panama Canal could not be defended.

And—the only way to keep it "open, secure, efficient and neutral," was to give it to Panama, together with the Canal Zone.

Stories from Panama City, June 2, reported U.S. negotiators have drafted an agreement with Panama's negotiators that would surrender the zone and waterway as of December 31, 1999.

However, the reports said a second agreement had been reached providing for the "neutrality" of the canal.

For months the news media has reported the chief stumbling block in treaty negotiations has been the matter of "guaranteeing the neutrality" of the canal—in other words, its defense—after we turned it over to Panama. Official leaks to the press revealed the United States wanted the right to come in and defend it, if necessary, while Panama said it wanted the OAS or UN to do that.

As a matter of fact, Panama's dictator, Omar Torrijos, reportedly fired his last Foreign Minister, Aquilino Boyd, because of differences over this matter of defense of the canal.

So it is evident that some agreement must have been reached on defense of the canal if a second pact has been drafted.

Mr. Speaker, President Carter as a candidate often stated he would not soon give up "practical control" of the Panama Canal. Unless Mr. Carter has completely reversed himself, I conclude that Torrijos has agreed to let the United States defend the canal after Panama takes it over.

This brings me to the point.

Mr. Speaker, if under a new treaty Uncle Sam is going to defend the Panama Canal, then I ask, why the official baloney for the past few years that it was no longer possible for us to defend it?

Which is it to be?

What are we to believe?

Can we defend the Panama Canal, or can't we?

Were we told repeatedly the United States could not defend the canal only to brainwash us into accepting surrender of the vital waterway to a weak country that commonsense tells us cannot defend it?

Mr. Speaker, have we been had?

It certainly will be a ludicrous official policy contradiction for the administration now to tell us that the United States, indeed, will continue to defend the Panama Canal, and its installations, after having insisted we must give them to Panama on the grounds that otherwise we could not defend them!

Thank you, Mr. Chairman.

Mr. METCALFE. Thank you.

The first witness we will call upon is the Honorable William D. Rogers, former Assistant Secretary of State for Inter-American Relations.

Mr. Secretary Rogers.

[The prepared statement follows:]

STATEMENT OF WILLIAM D. ROGERS
Before the Panama Canal Subcommittee of the
House Committee on Merchant Marine and Fisheries
On Wednesday, July 27, 1977

Mr. Chairman, members of the Committee. It is a considerable honor to appear before you.

I shall try to say a word or two about the international significance of a new Canal Treaty. I speak from the particular perspective of a Deputy U.S. Coordinator of the Alliance for Progress during the Kennedy Administration, President of the Center for Inter-American Relations during the late sixties, and as Assistant Secretary of State for Inter-American Affairs, Under Secretary of State for Economic Affairs, member of the Canal Company Board — and the State Department's resident Democrat during 1974 to 1976.

In my opinion, a new Canal Treaty will have international significance in three ways. First, it will demonstrate that the United States is prepared to take the lead in the search for solutions to the

problems of interdependence in the mordern world. Second, a new Treaty will significantly affect our relations with Latin America. Finally, the resolution of the Treaty issue is a matter of considerable concern to our allies in Western Europe and Asia.

I.

The most common argument for a new Treaty is the pragmatic argument. It is a powerful argument, not the least of the reasons for which is the fact that we are, after all, still the most gloriously pragmatic people on the globe. The pragmatic argument is that our central purpose and interest in Panama is the Canal. What keeps it open is good; what closes it is bad. A new Treaty, it is said, will be more likely than the status quo to keep the Canal open.

This simple proposition has its appeal, as I have suggested. It is the consideration which impels the Council of the Americas to become such an articulate and effective voice for a new Treaty. The Council's

historic record in support of revolutionary causes in Latin America has not been excessively long. Yet this organization has taken a strong stand on the Panama question. The reason is simple. The pragmatic consideration, that a new Treaty is needed to keep the Canal open, appeals to business considerations and to our national economic interests.

There is, however, a somewhat different, perhaps higher, measure of our international interests against which a new Panama Treaty should be tested. I am convinced that the world in which we live is in a process of rapid change. The old order is passing. The challenges to our diplomacy today are less and less the zero-sum conflicts of separate, national interests. The great issues facing mankind now are issues which call for cooperative solutions. An inventory of those issues includes the control of world armaments, the challenge of global poverty, the management and pricing of the world's scarce energy supplies, the structuring of other international commodity markets, the environment and the law of the seas. These are the future root

problems of our age. They will be with us long after today's front-page political questions are resolved. They are not issues capable of resolution in a we-us, either-or, England vs. Germany, India vs. Pakistan fashion. They are issues which I call interdependence issues -- issues which demand a recognition of common purpose and an identification of the mutual interests which can be served by comprehensive answers. No nation wins, and no one loses. All are challenged by these increasingly ominous issues. They can only respond effectively if they respond collectively.

The opponents of a new Treaty do not see the Panama issue in this light. They tend to regard it as a single, isolated dispute between the United States and Panama. Does that land, and the canal that goes through it, "belong" to the United States? Or does it "belong" to Panama? Will the United States "keep" what it has? Or will it "give back" its "property"? These are the questions the opponents ask. They are, you will see, all zero sum questions, implying that

we lose exactly to the extent that Panama wins -- that what is good for them is bad for us, and vice versa.

The opponents see the issue, in short, as a clash of nationhoods. They have managed to perceive that small, discrete patch of ground in Panama as their own, as an essential, inherent extension of the nation to which they belong. In addition, they have been able to persuade themselves that the integrity of that nation will be affected if the management of that territory passes to other hands.

This is the classic stuff from which international conflicts have emerged in the past: the conviction that, on a particular matter, it is either us or them, and that if we concede on this issue our capacity to stand up and defend ourselves on other matters will be forever jeopardized.

In fact, such us-them conflicts over land are relatively rare on the agenda of issues which vex international relations in the late Twentieth Century.

There are not now a large number of conventional clashes of nationhood over specific pieces of territory in the world today. However, those which do come to mind, such as the West Bank of the Jordan, bear an ominous similarity to Panama in that each could easily deteriorate into serious violence.

Where we have failed, those of us who have been in positions of official responsibility these past several years, is in failing to place the Panama issue in the broader context. In my view, it is a misleading mistake to see the Treaty as a we-they problem. It is, instead, a classic issue of interdependence.

The nature of this interdependence is apparent from the function of the Canal itself. The Canal is a link in the network of international trade, facilitating the export of bananas from Ecuador, copper from Peru, television sets and Toyotas from Japan, and coal back from Norfolk to Japan. Thus, the issue how best to serve the interests of that commerce is not an issue in which one nation wins and the other loses,

as in classic territorial disputes between nations. This is an issue whose effective solution will benefit all nations and will affirm again the increasing interdependence of the peoples of the world today.

It is my further view that the United States has a special responsibility to lead in the search for solutions to such problems of interdependency. I have represented the United States in a fair number of international conferences dealing in interdependency issues -- at the Organization for Economic Cooperation and Development, the United Nations Conference on Trade and Development, in the World Bank and the IMF -- and had some role in policymaking on such questions as well. I am persuaded that it is the United States which has played, and must play, the leadership role. We must continue to do so, not because we are more virtuous or wiser, but because the circumstances of geography and good luck have given us both unparalleled military might and an overwhelming voice in the economic affairs of the world. No solution on such issues is possible without us; no other nation has the will or the authority

to do what we can do on these great contemporary issues.

And for that reason our voice must be a voice of judgment, conciliation and the long view. We, above all nations, must be first in the search for answers to the challenges of interdependency in today's world, and, by the same token, first to embrace them.

This, it seems to me, is the most far-reaching international interest we have at stake in Panama. It is not merely an interest in organizing our common interests with Panama in a way which keeps the Canal open. It is also an interest in demonstrating to Latin America, to Europe and Japan, to Africa, to Israel and Asia, that this nation is indeed prepared to exercise its responsibilities of leadership and meet the challenges facing the future world order.

II.

The new treaty is also central to our relations with Latin America. The economic dependence of the nations of Latin America on the Canal is not often

mentioned by the opponents of a new Treaty. But it is considerable, and considerably greater than our own. The United States is tenth in order of dependence on the Canal; Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Nicaragua and Peru send far larger percentages of their foreign trade through the Canal than the United States. Seventy-seven percent of Nicaragua's foreign trade, for instance, passes through the Panama Canal.

In addition, the economies of the other countries of this Hemisphere are more dependent on foreign trade than the United States. This means that the impact of the Canal on their economies is markedly more significant than for the U.S. For example, almost 40% of Ecuador's GNP for 1973, as compared with 1% of the United States' GNP, passed through the Panama Canal. The disruption of the Canal would, therefore, have a severe impact on the economies of these Latin American nations. If the talks stall, or if Congress rejects an equitable treaty put before it by the Executive, and the Canal were closed in consequence, this would

not enhance our prestige in Latin America. Nor would this contribute to the economic development of the Hemisphere, which has been our foreign policy goal for two decades.

The political interest in Latin America in resolution of the Panamanian issue is just as keen as the economic interest. Panama has made its case to Latin America and to the other developing countries with considerable vigor. Perhaps the most articulate expression was the address of Archbishop of Panama Marcos McGrath before the United Nations Security Council in 1973. He pointed out:

First, as he saw it, the terms of the Treaty unfairly impede Panama's economic development and deprive her of the benefits of her primary natural resource. The Canal Zone contains large areas of unused land necessary to the economic development and urban expansion of Panama and unnecessary for the operation of the Canal. Further, the Canal Zone controls all deep-water ports serving Panama. In addition, the inability of Panama

to tax the majority of the residents of the Canal Zone deprives it of a major source of revenue. Further, Archbishop McGrath argued that the annual stipend paid for use of the Canal, currently $2.3 million a year, does not reflect the true economic importance of the Canal.

Second, he argued, the magnitude of the U.S. presence infringes on Panama's nationhood. Under the terms of the 1903 Treaty, the United States maintains a government totally independent of Panama. It operates a police force, jails and courts with which it enforces its laws even upon Panamanians. We marry people, we divorce them, we even give parking tickets. In short, the Zone, as he saw it, is the last enclave of colonialism, and the 1903 Treaty by its terms calls for a perpetual intrusion into into the national personality of Panama.

These Panamanian arguments have struck a responsive chord, particularly, though by no means only, in Latin America. When President Lopez-Michelson of

Colombia visited Washington in 1975, he said, with the tact and sensibility which is his trademark, that Panama is the one continental problem we face in our hemispheric relations. In this, he meant that the need to design a new relationship between Panama and the United States is the single issue of inter-American relations on which all the nations of Latin America are united, and the single most important problem on the agenda of U.S.-Latin American relations. In a recent session of the United Nations General Assembly, seven Latin American delegates -- two presidents and a prime minister -- rose to speak on behalf of Panama. The Ecuadorian spoke of "categorical support for the sister republic." The Peruvian decried "vestiges of colonialism." Latin America, in short, sees our ability to resolve the Panama issue as the acid test of our policy and posture.

From my experience in inter-American relations over a decade and a half, through Democratic and Republican administrations, I cannot say emphatically enough that rejection of a fair treaty by the Congress would have adverse consequences for the entire future

of our relations with the rest of the Hemisphere for decades to come. I would add that that impact would be particularly severe in the democracies of Venezuela, Colombia and Costa Rica. These democracies have been the most vigorous advocates for a new Treaty. They have, as well, been highly responsible in their efforts to speed the negotiations along, as in evident form the highly responsible statements of President Carlos Andres Perez of Venezuela during his recent visit here. By the same token, those democracies, together with the others in the Caribbean, particularly in Mexico, Jamaica and Trinidad, would be most grievously disappointed if the effort fails. This would have serious consequences for our ability to work with them on human rights and the other interests, such as oil pricing, which we share with them.

It is true that some Latin American countries feel more strongly about the question than others. There is more interest around the Caribbean than there is among the Southern Cone countries of Brazil, Argentina and Chile. This is in part a reflection of geography;

in part, of the somewhat different ideologies and foreign policy strategies in the two groupings. However, a breakdown of the negotiations would, nevertheless, affect our bilateral relations with every nation.

Panama is not only important to our bilateral relations in the Americas. It also could affect our efforts in multilateral institutions. The issue is on every OAS General Assembly agenda. Panama can get a hearing at any time and in any United Nations forum in which it chooses to raise the question. The Committee should recall, in fact, that Panama was able to have the United Nations Security Council meet in Panama City itself in order to dramatize its interest in a new Canal Treaty to the world.

The Treaty has not been a noisy item recently in international meetings. This is not because it is not a matter of interest to the developing countries. It is only because the Panamanians have asked their friends to mute the matter for the moment. Nevertheless, it could be an explosive issue in every multilateral

forum in the future, when and if Panama chooses to make it so.

I have always hestitated to speculate too explicitly and luridly about the precise consequences if the present Treaty negotiations were to fail and there is violence and bloodshed involving both U.S. and Panamanian citizens. In the first place, a litany of possible reactions might well invite those reactions; in the second, the fact that there might be trouble is not the reason to negotiate, and is scarcely the best way to induce a spirit of cooperation in the United States. Nevertheless, I think it fair to say that we would be wise to anticipate a number of adverse consequences: trouble around the Caribbean, and elsewhere in Latin America, echoed elsewhere in the developing world and in some parts of Europe; demonstrations against our embassies of a kind we have not seen for a number of years; increased pressure and perhaps symbolic acts against U.S. corporate interests and installations in Latin America; and a distinct cooling of official relationships. In short, in my

a serious threat to our interests in Latin America, to our investments there, to our access to the raw materials and commodities of Latin America and to our exports through the Canal.

III.

I turn now to the significance of the Canal issue for our relations with the rest of the world.

We are in Panama, not only because of the commercial interests of the United States, but in a broader sense as fiduciaries for others as well. Europe and Japan represent a major part of world trade. Therefore, they have virtually as strong an interest in the resolution of the Canal question as we do.

Since 1970 forty percent of the traffic through the Canal either originated from or was destined to Japan. This constitutes about ten percent of Japanese ocean-borne commerce, placing Japan right behind the United States in order of dependence on the Canal.

West Germany, likewise, has an economic interest in the Canal. A large share of the Canal traffic orginates in or is destined for Germany. Over ten percent of the ships passing through the Canal were of German registry, placing West Germany third behind the United States in that respect. The Canal is an international utility. A breakdown of the treaty negotiations, if it leads to turmoil and conflict in the Zone which threaten the transit process, would have a serious impact on the economies of the other industrial democracies. The interests at stake in the negotiations, in other words, are their interests as well as our own.

While I was in the Department of State, I made it a point to discuss the negotiations formally with officials of Germany and Japan at length, and on several occasions. They recognized that we were acting for them, in a sense, and confirmed that they were watching the negotiations process carefully. They hoped that we would succeed quickly in our search for a mutually satisfactory solution.

In short, Mr. Chairman, the Panama Canal Treaty effort is at the center of our contemporary foreign relations. It touches on the interests of friends and allies around the world. It is a public test of the ability and willingness of the United States to deal effectively, as world leaders, with interdependent national interests.

Since the diplomatic breakthrough of the Tack-Kissinger Statement of Principles in 1974, the Canal question has been relatively quiet. It has not troubled our international posture since, for four years, Panama and the international community have been persuaded that where we were negotiating in good faith and making progress.

If those negotiations now fail, however, and if the continued operation of the Canal is at risk as a consequence, interests and our influence in many corners of the globe will feel the effect -- to the perpetual delight of those who do not wish us well. If we succeed, we will have made a major, historic contribution to world order.

STATEMENTS OF MR. WILLIAM D. ROGERS, FORMER ASSISTANT SECRETARY OF STATE FOR INTER-AMERICAN AFFAIRS; MR. HENRY GEYELIN, PRESIDENT, COUNCIL OF THE AMERICAS; MR.YALE FERGUSON, PROFESSOR OF LATIN AMERICAN STUDIES, RUTGERS UNIVERSITY, AND MS. VIRGINIA PREWETT, WASHINGTON COLUMNIST ON LATIN AMERICA, NORTH AMERICAN NEWSPAPER ALLIANCE

Mr. ROGERS. Mr. Chairman, members of the committee, it is a considerable honor to appear before you. I will read some of the highlights, from my testimony—assuming there are any.

I shall try to say a word or two about the international significance of a new Canal treaty. I speak from the particular perspective of a former Deputy U.S. Coordinator of the Alliance for Progress during the Kennedy Administration, President of the Center for Inter-American Relations during the late Sixties, and as Assistant Secretary of State for Inter-American Affairs, Under Secretary of State for Economic Affairs, member of the Canal Company Board, and the State Department's resident Democrat during 1974 to 1976.

In my opinion, a new Canal treaty will have international significance in three ways:

First, it will demonstrate that the United States is prepared to take the lead in the search for solutions to the problems of interdepencence in the modern world.

Second, a new treaty will significantly affect our relations with Latin America.

Finally, the resolution of the treaty issue is a matter of considerable concern to our allies in Western Europe and Asia.

The most common argument for a new treaty is the pragmatic argument. It is a powerful argument, not the least of the reasons for which is the fact that we are, after all, still the most gloriously pragmatic people on the globe. The pragmatic argument is that our central purpose and interest in Panama is the Canal. What keeps it open is good; what closes it is bad. A new treaty, it is said, will be more likely than the status quo to keep the Canal open.

This simple proposition has its appeal, as I have suggested. It is this consideration which impels the Council of the Americas to become such an articulate and effective voice for a new treaty. The Council's historic record in support of revolutionary causes in Latin America has not been excessively long, yet this organization has taken a strong stand on the Panama question. The reason is simple. The pragmatic consideration, that a new treaty is needed to keep the Canal open, appeals to business considerations and to our national economic interests.

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management and pricing of the world's scarce energy supplies, the structuring of other international commodity markets, the environment, and the law of the seas. These are the future root problems of our age. They will be with us for a long time after today's front-page political questions are resolved. They are not issues capable of resolution in a we/us, either/or, England versus Germany, India versus Pakistan fashion. They are issues which I call interdependence issues, issues which demand a recognition of common purpose and an identification of the mutual interests which can be served by comprehensive answers. No nation wins, and no nation loses. All are challenged by these increasingly ominous issues. They can only respond effectively if they respond collectively.

The opponents of a new treaty do not see the Panama issue in this light. They tend to regard it as a single, isolated dispute between the United States and Panama. Does that land, and the Canal that goes through it, belong to the United States? Or does it belong to Panama? Will the United States keep what it has? Or will it give back its property?

These are the questions the opponents ask. They are, you will see, all zero-sum questions, implying that we lose exactly to the extent that Panama wins, that what is good for them is bad for us, and vice versa.

The opponents see the issue, in short, as a clash of nationhoods. They have managed to perceive that small, discrete patch of ground in Panama as their own, as an essential, inherent extension of that nation to which they belong. In addition, they have been able to persuade themselves that the integrity of that nation, the U.S., will be affected if the management of that territory passes to other hands.

This is the classic stuff from which international conflicts have emerged in the past, the conviction that, on a particular matter, it is either us or them, and that if we concede on this issue our capacity to stand up and defend ourselves on other matters will be forever jeorpardized.

In fact, such we-they conflicts over land are relatively rare on the agenda of issues which vex international relations in the late 20th century. There are not now a large number of conventional clashes of nationhood over specific pieces of territory in the world. However, those which do come to mind, such as the West Bank of the Jordan, bear an ominous similarity to Panama in that each could easily deteriorate into serious violence.

Where we have failed, those of us who have been in positions of official responsibility these past several years, is in framing the Panama issue in the broader context. In my view, it is a misleading mistake to see the treaty as a we-they problem. It is, instead, a classic issue of interdependence.

The nature of this interdependence is apparent from the function of the Canal itself. The Canal is a link in the network of international trade, facilitating the export of bananas from Ecuador, copper from Peru, television sets and Toyotas from Japan, and coal back from Norfolk to Japan. Thus, the issue of how best to serve the interests of that commerce is not an issue in which one nation wins and the other loses, as in classic territorial disputes between na-

tions; this is an issue whose effective solution will benefit all nations and will affirm again the increasing interdependence of the peoples of the world today.

It is my further view that the United States has a special responsibility to lead in the search for solutions to such problems of interdependency. I have represented the United States in a fair number of international conferences dealing in interdependency issues—at the Organization for Economic Cooperation and Development, the United Nations Conference on Trade and Development, in the World Bank and the IMF—and have had some role in policy-making on such questions as well.

I am persuaded that it is the United States which has played, and must play, the leadership role. We must continue to do so, not because we are more virtuous or wiser, but because the circumstances of geography and good luck have given us both unparalleled military might and an overwhelming voice in the economic affairs of the world. No solution on such issues is possible without us; no other nation has the will or the authority to do what we can on these great contemporary issues.

For that reason our voice must be a voice of judgment, conciliation and the long view. We, above all nations, must be first in the search for answers to the challenges of interdependency in today's world, and, by the same token, first to embrace them.

This, it seems to me, is the most far-reaching international interest we have at stake in Panama. It is not merely an interest in organizing our common interests with Panama in a way which keeps the Canal open. It is also an interest in demonstrating to Latin America, to Europe and Japan, to Africa, to Israel and Asia, that this nation is indeed prepared to exercise its responsibilities of leadership and meet the challenges facing the future world order.

The new treaty is also central to our relations with Latin America. The economic dependence of the nations of Latin America on the Canal is not often mentioned by the opponents of a new treaty, but it is considerable, and considerably greater than our own. The United States is tenth in order of dependence on the Canal. Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Nicaragua, and Peru send far larger percentages of their foreign trade through the Canal than the United States. Seventy-seven percent of Nicaragua's foreign trade, for instance, passes through the Panama Canal.

In addition, the economies of the other countries of this hemisphere are more dependent on foreign trade than the United States. This means that the impact of the Canal on their economies is markedly more significant than it is for the United States. For example, almost 40 percent of Ecuador's GNP for 1973, as compared with 1 percent of the United States' GNP, passed through the Panama Canal.

The disruption of the Canal would, therefore, have a severe impact on the economies of these Latin American nations. If the talks stall, or if Congress rejects an equitable treaty put before it by the executive, and the Canal were closed in consequence, this would not enhance our prestige in Latin America. Nor would this contribute to the economic development of the hemisphere, which has been our foreign policy goal for two decades.

The political interest in Latin America in resolution of the Panamanian issue is just as keen as the economic interest. Panama has made its case to Latin America and to the other developing countries with considerable vigor. Perhaps the most articulate expression was the address of Archbishop of Panama Marcos McGrath before the United National Security Council in 1973.

He pointed out, first, as he saw it, the terms of the treaty unfairly impede Panama's economic development and deprive her of the benefits of her primary natural resource. The Canal Zone contains large areas of unused land necessary to the economic development and urban expansion of Panama and unnecessary for the operation of the Canal. Further, the Canal Zone controls all deep-water ports serving Panama. In addition, the inability of Panama to tax the majority of the residents of the Canal Zone deprives it of a major source of revenue. Further, Archbishop McGrath argued that the annual stipend paid for use of the Canal, currently $2.3 million a year, does not reflect the true economic importance of the Canal.

Second, he argued, the magnitude of the U.S. presence infringes on Panama's nationhood. Under the terms of the 1903 Treaty, the United States maintains a government totally independent of Panama. It operates a police force, jails, and courts with which it enforces its laws even upon Panamanians. We marry people, we divorce them, we even give parking tickets. In short, the Zone, as he saw it, is the last enclave of colonialism, and the 1903 Treaty by its terms calls for a perpetual intrusion into the national personality of Panama.

These Panamanian arguments have struck a responsive chord, particularly, though by no means only, in Latin America. When President Lopez-Michelson of Colombia visited Washington in 1975, he said, with the tact and sensibility which is his trademark, that Panama is the one continental problem we face in our hemispheric relations. In this he meant that the need to design a new relationship between Panama and the United States is the single issue of inter-American relations on which all the nations of Latin America are united, and the single most important problem on the agenda of U.S.-Latin American relations.

In a recent session of the United Nations General Assembly, seven Latin American delegates—two presidents and a prime minister—rose to speak on behalf of Panama. The Ecuadorian spoke of " categorical support for the sister republic." The Peruvian decried "vestiges of colonialism." Latin America, in short, sees our ability to resolve the Panama issue as the acid test of our policy and posture.

From my experience in inter-American relations over a decade and a half, through Democratic and Republican administrations, I cannot say emphatically enough that rejection of a fair treaty by the Congress would have adverse consequences for the entire future of our relations with the rest of the hemisphere for decades to come.

I would add that that impact would be particularly severe in the democracies of Venezuela, Colombia, and Costa Rica. These democracies have been the most vigorous advocates for a new treaty. They have, as well, been highly responsible in their efforts to speed the negotiations along, as is evident from the highly responsible statements of President Carlos Andres Perez of Venezuela during his

recent visit here. By the same token, those democracies, together with the others in the Caribbean, particularly in Mexico, Jamaica, and Trinidad, would be most grievously disappointed if the effort fails. This would have serious consequences for our ability to work with them on human rights and the other interests, such as oil pricing, which we share with them.

It is true that some Latin American countries feel more strongly about the question than others. There is more interest around the Caribbean than there is among the Southern Cone countries of Brazil, Argentina, and Chile. This is in part a reflection of geography; in part, of the somewhat different ideologies and foreign policy strategies in the two groupings. However, a breakdown of the negotiations would, nevertheless, affect our bilateral relations with every nation.

Panama is not only important to our bilateral relations in the Americas. It also could affect our efforts in multilateral institutions. The issue is on every OAS General Assembly agenda. Panama can get a hearing at any time and in any United Nations forum in which it chooses to raise the question. The committee should recall, in fact, that Panama was able to have the United Nations Security Council meet in Panama City itself in order to dramatize its interest in a new Canal treaty to the world.

The treaty has not been a noisy item recently in international or hemisphere meetings. This is not because it is not a matter of interest to the developing countries. It is only because the Panamanians have asked their friends to mute the matter for the moment. Nevertheless, it could be an explosive issue in every multilateral forum in the future, when and if Panama chooses to make it so.

I have always hesitated to speculate too explicitly and luridly about the precise consequences if the present treaty negotiations were to fail and there is violence and bloodshed involving both U.S. and Panamanian citizens.

In the first place, a litany of possible reactions might well invite those reactions; in the second, the fact that there might be trouble is not the reason to negotiate, and is scarcely the best way to induce a spirit of cooperation in the United States.

Nevertheless, I think it fair to say that we would be wise to anticipate a number of adverse consequences: trouble around the Caribbean and elsewhere in Latin America, echoed elsewhere in the developing world and in some parts of Europe; demonstratations against our embassies of a kind we have not seen for a number of years; increased pressure and perhaps symbolic acts against U.S. corporate interests and installations in Latin America, and a distinct cooling of official relationships—in short, in my view, a serious threat to our interests in Latin America, to our investments there, to our access to the raw materials and commodities of Latin America, and to our exports through the Canal.

I turn now to the significance of the Canal issue for our relations with the rest of the world.

We are in Panama not only because of the commercial interests of the United States, but in a broader sense as fiduciaries for others as well. Europe and Japan represnet a major part of world trade. Therefore, they have virtually as strong an interest in the resolution of the Canal question as we do.

Since 1970, 40 percent of the traffic through the Canal either originated from or was destined to Japan. This constitutes about 10 percent of Japanese oceanborne commerce, placing Japan right behind the United States in order of relative dependence on the Canal.

West Germany, likewise, has an economic interest in the Canal. A large share of the Canal traffic originates in or is destined for Germany. Over 10 percent of the ships passing through the Canal were of German registry, placing West Germany third behind the United States in that respect.

The Canal is an international utility. A breakdown of the treaty negotiations, if it leads to turmoil and conflict in the Zone which threaten the transit process, would have a serious impact on the economies of the other industrial democracies. The interests at stake in the negotiations, in other words, are their interests as well as our own.

While I was in the Department of State, I made it a point to discuss the negotiations formally with officials of Germany and Japan at length, and on several occasions. They recognized that we were acting for them, in a sense, and confirmed that they were watching the negotiations process carefully. They hoped that we would succeed quickly in our search for a mutually satisfctory solution.

In short. Mr. Chairman, the Panama Canal Treaty effort is at the center of our contemporary foreign relations. It touches on the interests of friends and allies around the world. It is a public test of the ability and willingness of the United States to deal effectively, as world leaders, with interdependent national interests.

Since the diplomatic breakthrough of the Tack-Kissinger Statement of Principles in 1974, the Canal question has been relatively quiet. It has not troubled our international posture since, for four years, Panama and the international community have been persuaded that we were negotiating in good faith and making progress.

If those negotiations now fail, however, and if the continued operation of the Canal is at risk as a consequence, our interests and our influence in many corners of the globe will feel the effect, to the perpetual delight, I add, of those who do not wish us well. If we succeed, we will have made a major, historic contribution to world order.

Mr. Bowen. Thank you, Mr. Secretary.

I would like to ask you to stay. We would like to question the entire panel en bloc when we finish this morning.

I would like to call on Mr. Henry Geyelin, President of the Council on the Americas.

Mr. Geyelin.

STATEMENT OF MR. HENRY GEYELIN

Mr. Geyelin. Mr. Chairman and members of the committee, on behalf of the Council of the Americas, I would like to thank you for this opportunity to present our views.

At the outset, I would like to state that the Council of the Americas, whose membership includes over 220 U.S. corporations

comprising approximately 90 percent of U.S. investment in Latin America, believes that good faith negotiations to accommodate the national interests of the U.S. and Panama should not be impaired or interrupted.

Furthermore, we believe that this issue transcends bilateral relations between the U.S. and Panama, and that a successful resolution of the differences of opinion between these two countries would have a very positive impact upon U.S. relations with the nations of the Western Hemisphere.

It is not possible at this time to judge the merits of a new treaty which does not exist, but we have judged the concept of working toward a new treaty and concluded that it is in the best interests of the United States to proceed with negotiations. The U.S. public is generally uninformed on the issues involved and opinions have been based too often on emotion and rhetoric rather than logic and analysis. For that reason, and to that end, the Council is conducting presently a public educational program on the issues and has published a booklet entitled "The United States, Panama and the Panama Canal: A Guide to the Issues."

Since this book has already been introduced into the Congressional Record, at this time I would like to introduce the text of that issue's booklet into the transcript of these hearings.

[The document referred to follows:]

UNITED STATES, PANAMA AND THE PANAMA CANAL

A GUIDE TO THE ISSUES

Council of the Americas 680 Park Avenue New York N.Y. 10021

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"The Government of the U.S. should maintain and protect its sovereign rights and jurisdiction over the Canal and Zone, and should in no way cede, dilute, forfeit, negotiate or transfer any of these sovereign rights, power, authority, jurisdiction, territory or property that are indispensably necessary for the protection and security of the United States and the entire Western Hemisphere."

Senator Strom Thurmond
March, 1975

"We see a new treaty arrangement as the most practical means of protecting our interests. If we try to maintain the status quo, we will face mounting hostility in both Panama and Latin America—and possible loss of the very interest we want to preserve. But a new arrangement based on partnership promises a greater assurance of safeguarding that interest—a canal that is open, safe, efficient and neutral."

Ambassador Ellsworth Bunker
December 1975

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PREFACE

For years, the United States and Panama have been engaged in negotiations for a new Panama Canal Treaty. Observers anticipate completion of a draft treaty by the end of 1977.

These complex negotiations involve such significant economic, political and defense interests for the United States that there has been some disagreement about whether or not negotiations for a new treaty are in the United States national interest. Congress has already begun to debate the matter, even though a treaty has yet to be submitted for ratification.

A productive discussion of the merits of continued negotiations for a new treaty requires a knowledge of the facts and an understanding of the different points of view that prevail in the United States. This booklet is designed to help promote such a productive discussion. All readily available sources of information in the United States—including those that favor a new treaty and those that oppose one—have been reviewed in an effort to set out clearly, simply and objectively the factors involved in this complex issue. It is hoped that an informed understanding may be reached within the United States regarding the common interests involved in the negotiations.

The development of United States foreign policy is served by interested, informed citizens willing to share their views with their representatives in government. A more informed American public can help assure that all U.S. national interests in this foreign policy issue are considered.

SUMMARY

The negotiations under way between the United States and Panama are designed to produce a new treaty to replace the Hay-Bunau-Varilla Treaty of 1903. In that agreement, properly titled the Convention for the Construction of a Ship Canal, Panama granted the United States in perpetuity the use, occupation, and control of a zone of land in order to build, operate and defend a canal across the Isthmus of Panama. The United States was also granted all the rights, power, and authority, as if it were the sovereign, within a zone along the waterway. For these rights, the United States agreed to pay Panama an initial $10 million, plus an annual fee. Soon after, the United States paid a French company, which had failed in an attempt to build a canal, $40 million for its assets.

Over the years, Panamanians have come to resent the 1903 treaty bitterly. Their resentment has become a major irritant in Panama's relations with the United States, and indeed, in hemispheric relations generally. The stated objective of current negotiations is to produce a treaty which accommodates the interests of the Republic of Panama and safeguards the basic, long-term interests of the United States.

Panama's Interest In The Negotiations

Panamanians see the 1903 treaty as a set of concessions extracted from an immature new republic by unscrupulous foreign interests. They particularly object to the fact that the treaty gives the United States—forever—exclusive jurisdiction over a large tract of Panamanian territory, the Canal Zone. They also object to the size of the United States military presence in the zone, the limited economic benefits Panama receives from the canal and the amount of land in the zone that the United States does not use but that is still unavailable for Panamanian use.

United States Government Interest In The Negotiations

The goal of the United States in the negotiations is a treaty that promises greater assurance over the long term of a secure, efficient canal that is open to world shipping without discrimination. This country also seeks to reduce sources of friction with Panama and to foster a cooperative relationship, one conducive to protecting United States interests in the canal.

The Status Of The Negotiations

The most recent round of negotiations began in June, 1974. By September, 1976, agreement in principle had been reached on four major issues:

- The new treaty with Panama will have a fixed termination date.
- Under a new treaty, jurisdiction over the Canal Zone will pass to Panama gradually. The United States will retain the right to use areas necessary for the operation, maintenance and defense of the canal.
- During the life of the treaty, the United States will have the primary responsibility for operating the canal. Panamanians will gradually assume larger roles in day-to-day operations until Panama takes full responsibility for operations when the treaty expires.
- The United States will have primary responsibility for the defense of the canal during the life of the treaty. Panama will grant the United States use rights for defending the waterway and will participate in its defense as fully as possible.

Several other issues remain to be resolved. These concern the economic benefits Panama will derive from the canal, the right of the United States to expand the canal, the area the United States needs for canal operation and defense, an acceptable formula to insure the canal's neutrality after the treaty expires, the rights of United States citizens in the zone, and, finally, the duration of the new treaty.

Differences Of Opinion In The United States

The opponents of negotiations argue that the Canal Zone is sovereign United States territory not subject to negotiation and that the canal itself was bought and built and has been maintained for more than 60 years by the United States.

They say that the canal is too important strategically and economically to allow its control and defense by any other nation, especially the Panamanian

government, which they consider to be a leftist military dictatorship with ties to Cuba.

Therefore, they contend, negotiations for a new treaty are not only unnecessary but dangerous to United States security interests and should be terminated.

The proponents of negotiations, on the other hand, say that the current treaty relationship cannot assure the long-term interests of the United States in the canal. Moreover, they say that the Canal Zone is not sovereign United States territory, though the United States has all the rights and authority to conduct its activities in the zone as "if it were the sovereign."

They agree that the canal is important to United States commerce and defense, but say that this country's interest in the canal will be protected only if the waterway remains open, efficient and neutral—available to all the world's shipping. These objectives can best be guaranteed through the conclusion of a mutually satisfactory, new agreement with Panama.

For many years, the supporters of negotiations argue, Panama has considered the treaty to be heavily weighted in favor of the United States, and Panama's consent to the United States presence has declined. If the United States tries to maintain the status quo, they say, it will face mounting hostility in Panama and the rest of Latin America and, perhaps, the loss of the very interests it wants to preserve. A modern treaty arrangement which accommodates Panamanian interests will, they contend, promise greater assurance of safeguarding the national interests of the United States.

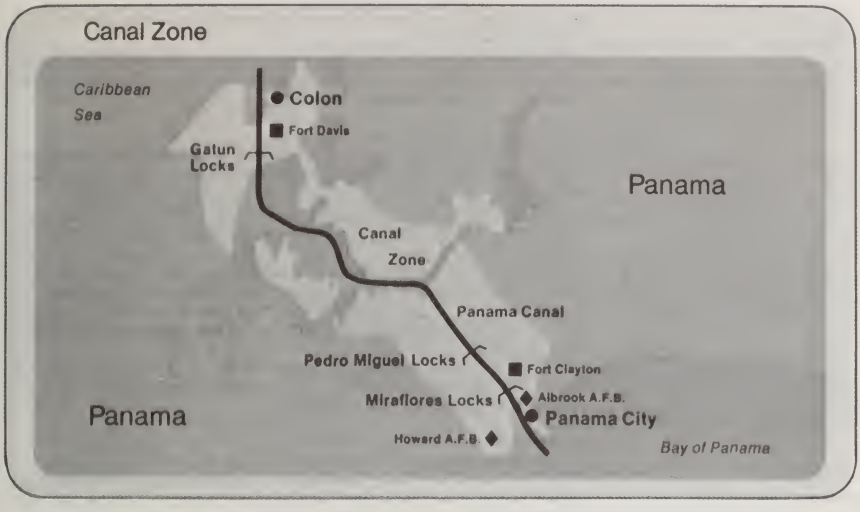
THE BACKGROUND

History

The strategic location of the Isthmus of Panama, with its potential as a short route between the Atlantic and Pacific Oceans, generated United States interest in a canal early in the 19th century. The area was then a part of Colombia, and the United States concluded a treaty with that nation for the construction and operation of a canal. Early in 1903 the Colombian Senate rejected the treaty, and by November of that year separatists in Panama had proclaimed their independence and had begun to negotiate with the United States for a treaty of their own. The United States military forces in the area hindered Colombian efforts to put down the Panamanian revolt, and almost immediately, thereafter, the United States recognized the new country.

The Hay-Bunau-Varilla Treaty

On November 18, 1903, the United States and the new Republic of Panama signed the Hay-Bunau-Varilla Treaty, which authorized the construction and operation of a canal across Panama. The agreement was named for its principal architects, Secretary of State John Hay of the United States and Philippe Bunau-Varilla, a French national who negotiated the treaty in the name of Panama. Mr. Bunau-Varilla also had an interest in selling to the United States the remaining assets of the defunct French company which had unsuccessfully tried to build an earlier canal. On December 2, 1903, the provisional government of Panama ratified the treaty.



Because of the long-standing Panamanian dissatisfaction with the treaty, the United States agreed in 1936 and 1955 to revise the agreement, through additional treaties which increased Panama's annual fee from the canal, abolished the right of the United States to intervene in the internal affairs of Panama and sought to give Panamanians commercial and employment equality with United States citizens in the zone.

Although important, those revisions did not remove Panama's fundamental dissatisfaction with the 1903 treaty. Panamanians continue to object to the fact that the United States exercises power as "if it were the sovereign" over some 640 square miles of Panamanian territory, that it operates in the Canal Zone a full-fledged government without reference to the Panamanian government and that it maintains a police force, courts and jails to enforce United States laws upon Panamanians as well as upon United States citizens.

Panama also objects to the fact that it has no voice in the management of the canal and does not receive what it considers an equitable share of the economic benefits derived from the canal. It complains that the Canal Zone divides the country in half, seriously hindering its urban and economic growth, that the United States holds unused large portions of land vital to the national development and that the treaty allows the United States to control all facilities servicing Panama's deepwater ports. They object to the size of the United States military presence in the Zone. Finally, Panama contends

that the United States limits Panamanian participation in commerical enterprises in the Canal Zone.

The dissatisfaction resulting from these complaints erupted in serious demonstrations in 1959 and in 1964 led to riots in which three United States soldiers and 21 Panamanians were killed.

Negotiations for a New Treaty

In December, 1964, President Johnson, after consulting with former Presidents Truman and Eisenhower, committed the United States to negotiate a new treaty.

The negotiations began in January, 1965, and culminated in a joint announcement in June, 1967, that draft treaties had been completed. No action on the draft treaties was taken by either nation and in August of 1970, the Panamanian government of General Omar Torrijos formally rejected them. Panama did, however, indicate a willingness to pursue further negotiations. Several proposals by both governments were offered in 1971–72 without success. In 1973 Ambassador Ellsworth Bunker was appointed by President Nixon to renew the talks.

In February, 1974, Secretary of State Kissinger of the United States and Foreign Minister Tack of Panama signed a statement of principles that is the basis for the negotiations now under way.

Guidelines for Current Negotiations

In summary, the principles provide that that the 1903 treaty will be replaced by a new one, which will have a fixed termination date; that the United States jurisdiction over Panamanian territory will be returned promptly to Panama; that Panama will grant to the United States, for the duration of the treaty, the right to use the land, water and airspace necessary for the operation, maintenance and defense of the canal and the right to regulate the transit of ships through the canal; that Panama will receive an equitable share of the benefits derived from the canal's operation and will participate in the operation and defense of the canal during the life of the treaty, assuming full responsibility for operations thereafter; and, finally, that Panama and the United States will agree on the provisions that will govern any expansion of the canal.

The Canal And The Canal Zone

The Canal Zone is about 10 miles wide and 51 miles long. It extends across the Isthmus of Panama from the Atlantic to the Pacific, cutting the Republic of Panama in half.

By the terms of the 1903 treaty, the Canal Zone is under the jurisdiction of the United States and is administered under United States laws. The Canal Zone government is, by law, an independent agency of the United States government. It is headed by a governor, who is appointed by the President of the United States for a four-year term.

Canal Operations and Tolls

The governor also serves as the president of the Panama Canal Company, a corporation wholly owned by the United States government. The Company is responsible for all of the operations directly involved in the movement of ships through the canal. It also controls vessel repairs, harbor terminals, a railroad across the isthmus, an electrical power system, a water system, a communications system, living quarters, retail stores and a supply ship operating between the zone and the United States.

Traditionally, the President of the United States appoints the Secretary of the Army as the sole stockholder of the Company, and names a Board of Directors, which oversees the Company's affairs. Approximately 80 percent of the Canal Company's employees are Panamanian, and the rest are United States citizens.

The Company sets toll rates for the canal with the approval of the President of the United States. By statute, tolls must be set to cover costs but are not intended to produce a profit. Since 1974, however, costs have exceeded revenues, and the Company is attempting to close the gap with several measures, including an increase in tolls.

Toll rates did not change for the first 60 years of the canal's operation. In 1974, however, due in part to rising costs, tolls were increased by 19.7 percent. Merchant vessels now pay $1.08 a ton for laden ships and 86 cents a ton for unloaded ships. A further increase of about 19.4 percent has been proposed.

Annuities to Panama

Under the 1903 treaty, the United States paid Panama $10 million initially and an annual fee (beginning in 1912) of $250,000 in gold. When the United States abandoned the gold standard, Panama received an equivalent annuity of $430,000. As a result of the treaty revisions, the annual payment was raised to $1.9 million. That figure has since been adjusted to allow for the devaluation of the dollar, bringing the annual payment by the United States to Panama to $2.3 million.

The Economic Picture

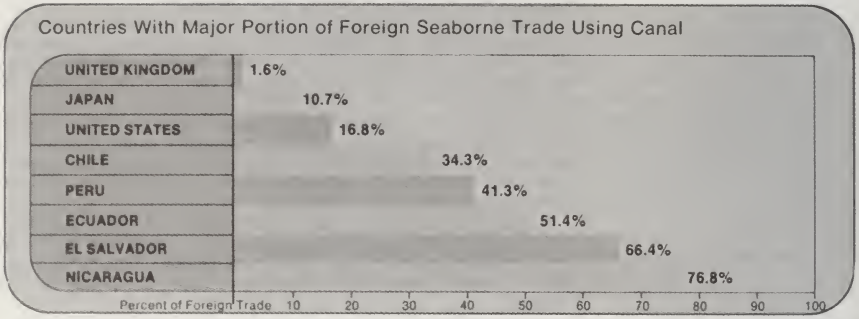
The Panama Canal has always been of considerable value to United States commerce. In 1975, about twelve percent of all United States export and import waterborne tonnage used the Panama route. Forty-five percent of the cargo moving through the canal came from the United States, and 23 percent was bound for United States ports.

Despite such statistics, however, the canal is not considered the critical United States trade route that it once was. A Library of Congress study indicates that there are many alternative routes for most important products and commodities. And the use of larger vessels and other means of transportation may serve to limit canal traffic in the future. Nevertheless, for shippers of cer-

tain commodities— coal and coke, for instance, and petroleum products— and for certain regions of the United States, the Panama Canal remains an important commercial link.

World Trade

The canal is more important to the commerce of Panama and some other Latin American nations than it is to that of the United States. More than 29



percent of Panama's foreign trade passes through the canal. Some 25 percent of its foreign exchange earnings and nearly 13 percent of its gross national product are directly or indirectly attributable to the waterway.

More than 50 percent of the foreign trade of Nicaragua, El Salvador, and Ecuador moves through the canal, as does more than 25 percent of the exports and imports of many other Latin American nations.

Of course, the canal's importance extends far beyond the hemisphere, for 5 percent of the world's seaborne trade uses it. Trade between the East Coast of the United States and Asia accounts for nearly 40 percent of the total canal traffic and is therefore, the major canal trade route.

Of total canal traffic moving from the Atlantic to the Pacific, some 12.5 percent is bound for the West Coast of the United States, 10.5 percent for South America and nearly two-thirds for Asia, principally Japan. About two-thirds of the traffic from the Atlantic to the Pacific originates in the United States.

Of the goods which passed from the Pacific to the Atlantic in 1975, only 12.5 percent originated in the United States. Most of the goods originated in South America—24 percent—or in Asia—37 percent. The remaining tonnage started out in Canada, Central America or Oceania. About 39 percent of all this West to East trade through the canal was destined for United States east and Gulf Coast ports. Another 40 percent was bound for Europe.

Most of the cargo moving through the canal is industrial raw materials and grains, which lend themselves to shipment by sea. Among such cargoes, fossil fuels—coal, coke, and petroleum—predominate, accounting for about 36 percent of the annual traffic. By contrast, finished products—iron and steel manufactures, for instance, or machinery and equipment—represent less than 10 percent of the canal's tonnage.

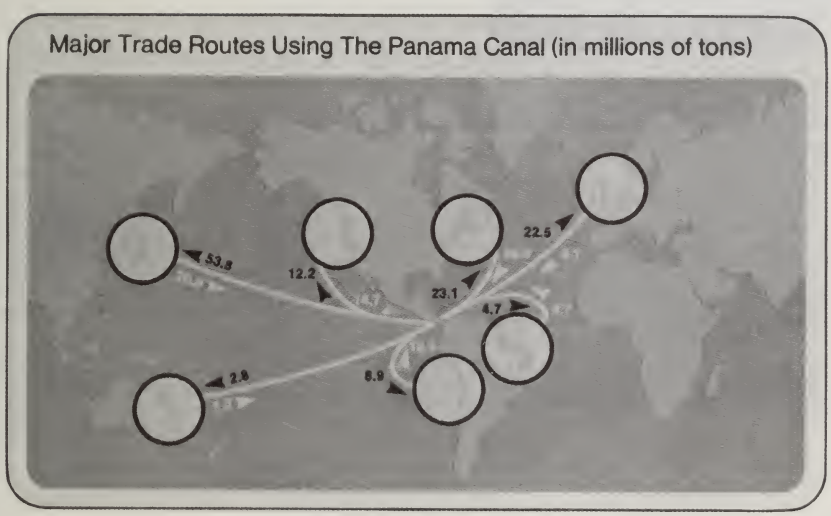
Transit Capacity

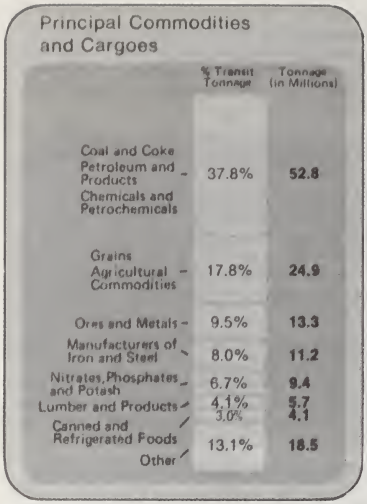
Currently, there are fewer than 15,000 transits through the canal each year, and its capacity is estimated at 26,000 transits a year. Projections suggest that this capacity will not be reached until early in the next century.

In case a greater capacity is required, two options have been considered. A third lane of locks could be added to the existing canal at an estimated cost of $1.7 billion, or a new sea-level canal could be built at an estimated cost of more than $5 billion. Thus far, there has been no conclusive evaluation of the economic or military need for or the technical feasibility of either expansion project.

The Defense Situation

The canal is an important defense asset to the United States, for it eases the task of shifting military forces and supplies between two of this country's major areas of strategic interest. The canal will remain important so long as the United States depends upon the sea for large-scale military logistic support. The fact that large aircraft carriers cannot use the canal and that nuclear





submarines would have to surface during transit tend to diminish the waterway's importance for strategic purposes, though not necessarily for logistic flexibility. The canal's vulnerability to attack is one of the reasons for the development of United States contingency plans of alternative routes for the movement of military forces and supplies.

The United States is responsible for the defense of the canal and the Canal Zone. It has in the zone a military community of about 22,000, including dependents. The actual combat and support forces total about 9,400. There are four United States administrative installations in the zone encompassing 22 sub-bases. For most situations involving a military invasion in the Canal Zone or for the protection of the entire canal from hostile attack or sabotage, contingency plans require reinforcements from the United States.

Because the efficient operation of the canal depends upon a delicate balance of natural and man-made elements, the Defense Department has acknowledged that, while a sufficient force could defend the waterway, there can be no guarantee that it would remain open continuously. In particular, the Pentagon says, it would be extremely difficult to prevent canal closure by an air attack or by skilled sabotage.

CONTRASTING VIEWS OF THE TREATY NEGOTIATIONS

There are differing opinions in the United States on the negotiations for a new canal treaty, as there are on any question so complex. And this issue is unusually complex; so much so that a point of view on one facet of the controversy does not necessarily represent a position fully in favor of or opposed to treaty negotiations. Opinions on both sides are mixtures of various interpretations and conclusions.

While any simplified presentation of such complicated issues may fail to take note of some technical points, what appears below is an attempt to be objective in outlining the opinions of opponents and proponents of the treaty negotiations.

Purpose Of The Negotiations

Q *Why is the United States negotiating a new treaty?*

Opponents: The State Department and the President are giving in to pressures from radical elements in and outside of Panama. The United States government is mistakenly attempting to appease anti-American and Communist interests in Panama and the rest of the hemisphere. Pressure to cede the Canal Zone to Panama stems not from the wishes of the Panamanian people, but from the propaganda of left-wing and extreme nationalist groups. It is unnecessary for the United States to respond to these pressures since its interests are protected by the terms of the present treaty.

Proponents: The United States recognizes that the existing treaty was negotiated more than 70 years ago and requires adjustment if it is to continue to serve the United States and Panamanian interests. For many years, Panama has considered the treaty to be heavily weighted in favor of the United States, and Panama's consent to continued United States presence on Panamanian territory has declined. Since it is much more prudent to operate and defend the canal with Panama's cooperation than without it, a new treaty arrangement is the most practical means of protecting United States interests in the canal.

Q *How can United States interests in the canal best be served?*

Opponents: The United States interest in the canal is too great to be negotiated. The ill-advised talks should be brought to a close in as amicable a manner as possible, and the United States should reassert its rights and authority in the area.

This would allow the United States to accomplish two essential goals: the retention of its undiluted sovereignty, indispensable to the effective operation of the canal, and the modernization of the canal in the future.

Proponents: United States long-term interests are jeopardized by the existing treaty, which has generated increasing dissatisfaction among Panamanians. Given the reliance of each party on the other in the operation of the canal and growing interdependence among all nations, a new arrangement based on partnership promises a greater assurance of safeguarding the basic United States interest—continued access to a well-run canal that is open to the shipping of all nations.

Q *What would the consequences be if the negotiations with Panama failed?*

Opponents: Minimal and salutary. Breaking off the negotiations would undoubtedly entail some diplomatic complications but there would be no conflict or retaliation by Panama in as much as it needs the canal for its economy. Moreover, the termination of negotiations would end United States cooperation with a policy that contributes to the perpetuation of the Torrijos regime. It would make clear to Panama and to adventurist Marxists that the United States will not relinquish its interests in the canal. Furthermore, it would reaffirm and maintain the United States strategic position in the Caribbean-Gulf of Mexico area.

Proponents: Perilous. If the United States fails to achieve a new treaty with Panama, the issue could produce a bitter political dispute which would affect

the efficient operation of the canal and could possibly result in the closing of the canal or damage to its facilities. Such a development would adversely affect United States interests in the canal as well as all relations, political and economic, with the countries of Latin America. Moreover, relations would be impaired with all nations which rely on the canal for their trade and commerce.

Q *How do other governments view the negotiations?*

Opponents: With quiet alarm. United States policies in operating the canal have been recognized as fair to all nations that use it. American allies who depend on the canal would question the United States determination to defend its vital interests—as well as their own—if the United States gave up control of the canal. While some Latin American governments may publicly support Panama in the negotiations, in private they favor the retention of full control by the United States.

Proponents: With satisfaction and anticipation. Latin America sees the handling of the negotiations as a test of United States political intentions in the hemisphere. In May, 1975, the General Assembly of the Organization of American States unanimously endorsed the concept of a new treaty, and most governments in Latin America have expressed support for it. A substantial number of member countries of the United Nations favor the conclusion of a new treaty. Some foreign leaders have even suggested internationalization of the canal. While other governments throughout the world recognize U.S. interests in the canal, they expect the United States to work out an arrangement with Panama that will guarantee the continued operation of the canal in service to world commerce and trade.

Economic Issues

Q *How can the economic value of the canal best be protected?*

Opponents: By standing firm. The best way to preserve the canal's economic value would be to retain sovereignty and jurisdiction over the Canal Zone, which is indispensable to assuring its efficient maintenance and operation; and to begin a modernization program, which could be accomplished at relatively low cost and in a short time with every assurance of success.

These actions would allow an increase in traffic and would thus increase the benefits Panama receives from the canal.

Proponents: By being reasonable. The canal's long-term economic value derives from its being efficient and fully operational. Tolls cannot be collected and goods cannot be shipped if the canal is closed. If the United States tries to maintain the status quo with Panama, it runs the risk of increased political discontent, which could possibly result in damage to or the closing of the canal. A cooperative and mutually agreeable management of the Panama Canal, reflected in a new treaty, would best assure the canal's continued availability to the commerce of both countries as well as to the rest of the world, preserving its economic value for all.

Any new treaty would protect United States long-term interests by including guarantees of continued efficient and neutral operation of the canal after Panama assumes the responsibility for its management.

Q *What would be the impact of greater Panamanian participation in and eventual control of the operation of the canal?*

Opponents: Chaos. The Panama Canal is a highly technical operation requiring the close coordination of many elements. It cannot be maintained by a small, technologically underdeveloped country or by one that is, like Panama, without adequate financial competence. Nor could the canal ever be modernized by Panama. Under Panamanian control, tolls would probably rise dramatically, driving away carriers whose operations are sensitive to toll increases.

Proponents: Progress and amity. There is little basis on which to argue that Panama would not be able to keep the canal operating efficiently and economically. Panama has the technological competence and managerial skills to assume greater participation in and control of canal operations. In fact, Panamanians already comprise more than 80 percent of the employees of the Panama Canal Company. While only a small percentage of these employees now serve in management positions, it is reasonable to assume that after a period of United States training, Panamanians will be able to take an increasing share of the burden in operating the canal.

Defense Issues

Q *Has the strategic importance of the canal diminished in recent years?*

Opponents: Not significantly. The Caribbean, Gulf and canal waters continue to offer mobility, flexibility and versatility to United States military forces at a minimum cost. The canal provides for the rapid deployment of ships from the Atlantic to the Pacific and back again, and history has repeatedly demonstrated the logic and the urgency of such a capability. During both world wars and the Korean and Vietnam conflicts, the canal was used heavily for the transfer of both combatants and supplies.

Beyond the logistic considerations, however, the United States military presence in the canal serves as a strategic deterrent to increasing Communist influences in the area—both Cuban and Soviet.

Proponents: Substantially. Nevertheless, the canal is still very important to the security interests of the United States. However, as a result of developments in modern warfare, the canal has become more vulnerable to temporary closure by air attack or sabotage. Because of that vulnerability, alternative routes have been developed for the movement of military forces and supplies. Furthermore, large aircraft carriers cannot use the canal and nuclear submarines, which would have to surface during any transit, are not likely to use it in wartime. These factors tend to diminish the importance of the canal for strategic purposes, but not necessarily for logistic purposes.

Moreover, the most likely source of increased Communist influence is exploitation of the Panamanian dissatisfaction with the existing treaty. The best deterrent to a Cuban or Soviet threat would be a treaty that gives Panama a role in the defense of a canal in which it has a major stake.

Q *How can the defense of the canal best be assured?*

Opponents: By retaining control. Control of the canal by any nation other than the United States would threaten the security of the canal and United States interests in it. The presence of the United States and its control, opera-

tion and defense of the canal must continue to insure the security of the waterway. The retention of United States sovereignty and ownership rights is the only way to assure control of canal operations and defense and the continued availability of the canal to United States security needs.

Proponents: By cooperating. Even now, security for the canal and the Zone depends upon cooperation between the Panamanian and United States governments. Although the area can be defended, even in a hostile environment, it would be impossible to insure the canal's continued operation in the face of a significant deterioration in the relationship between the United States and Panama.

The critical factor in the defense of the canal is not United States sovereignty but a cooperative relationship with Panama. Under a new treaty, the United States would retain the defense rights it needs, but Panama would be able to participate in the defense of the canal. A new canal treaty that fosters this cooperative relationship would be most conducive to a secure canal.

Q *Can the Republic of Panama defend the canal?*

Opponents: No. Panama's small National Guard is not comparable either in size or in fighting effectiveness to the United States military presence in the Canal Zone. The National Guard could not successfully defend itself against a Cuban attack. Moreover, the National Guard is commanded by a Marxist general, Omar Torrijos, who heads the Panamanian regime. His irresponsible leadership would threaten the security interests of the United States.

Proponents: Yes, in cooperation with the United States. United States forces are presently in the Canal Zone to provide limited security for the canal. It would be difficult or impossible to insulate the zone from sabotage or guerrilla attack without full cooperation from Panama. The Panamanian National Guard can assume increasing responsibliity for the defense of the canal, though in the event of a serious security threat, reinforcement from the United States would be necessary.

Political Issues

Q *Does the present government of Panama have the authority to represent Panama?*

Opponents: No. In October, 1968, the National Guard overthrew the legal, constitutionally elected government of Panama. The resulting military regime, led by Torrijos, was imposed by force and does not represent the 1.7 million people of Panama.

Proponents: Yes. United States policy stresses the need to deal with governments that are in power. This policy has determined United States relations with the government of General Torrijos, a military regime that has maintained its power for eight years. General Torrijos' powers as the "constitutional" leader of Panama were confirmed by the nation's 505-member Constituent Assembly, which was chosen in general elections in 1972.

Beyond these considerations, the canal issue is of such importance to Panamanians that it transcends the question of which government is in power. Past governments, both military and civilian, have registered their dis-

satisfaction with the treaty. It is virtually certain that future governments would press even more forcefully for a new treaty.

Q *Is the Panamanian government communistic?*

Opponents: Certainly. The government of Panama is dominated by leftist radicals. The Communist Party is operating openly. The principal government officials—including the chief of state, Torrijos—are considered to be Marxists.

Proponents: Hardly. The Torrijos regime is, perhaps, strongly nationalist and populist, but it is not communistic. It is a mixture of political elements, including those of the left, who support Torrijos and his program.

As a manifestation of its political independence—not of its ideological preferences—Panama established relations with Cuba in 1974, as did other Latin American countries. The economy of Panama, far from being communistic, encourages a strong and dynamic private sector.

A new treaty mutually acceptable to Panama and the United States would strengthen Panama's relations with the United States. It would remove the major issue being exploited by the Communists and make Panama less vulnerable to pressures from the left.

Q *What assurance is there –given Panama's many changes of government in 73 years of independence –that a new treaty will be honored by subsequent administrations?*

Opponents: None. Panama has been a land of endemic revolution, endless intrigue and governmental instability. There is no assurance of stability in a country that has changed governments some 60 times in little more than 70 years. Only four presidents ever completed their four year term in office. If there is no assurance of stability in Panama, there is no assurance of stability for the canal, should control be transferred to Panama.

Proponents: Sufficient. Panama has had a relatively stable political history since its independence. The statistics some alarmists quote for governmental changes include the instances in which vice presidents have been sworn in as acting presidents while presidents were travelling abroad—a formality that is required by the Panamanian constitution. Since 1946 Panama has had 13 governments; Italy has had 39. In the same period France has had 34 Premiers, the United States six presidents and the United Kingdom nine Prime Ministers.

For many years, Panama has objected to the canal treaty, but it has without exception adhered to the terms of the agreement, no matter who happened to be in power. A new, more satisfactory treaty should be even more firmly supported and observed. Moreover, the treaty is an emotional, nationalistic and economic issue in Panama. If a treaty is negotiated that removes some of the long-standing grievances of the Panamanian people, it should be honored even more readily by subsequent governments.

Legal Issues

Q *Does the United States own the Canal Zone?*

Opponents: Absolutely. The Canal Zone and the Panama Canal are constitutionally acquired territory. They are the property of the United States, paid for and developed by the United States.

Proponents: No. The $10 million the United States paid Panama under the 1903 treaty was not for the purchase of the Canal Zone, but in compensation for the rights, power and authority the United States would exercise there.

The United States does have title to some property in the zone, but property may be owned by one country or individual and still be subject to the sovereignty of another country.

Q *Is the status of the Canal Zone in relation to the United States comparable to that of Alaska or the states formed from the Louisiana Purchase?*

Opponents: Yes. There are similarities, at least historically. As territory over which the United States exercises sovereignty in perpetuity, the Canal Zone has similar legal status to that which any other land the United States acquired has had in the past. In as much as Panama ceded to the United States the entire territory comprising the Zone, the Zone was obtained in the same manner as Alaska and the Louisiana Purchase. The relinquishment of the Canal Zone by the United States would, therefore, be analogous to the return of the Gadsen Purchase to Mexico or Alaska to Russia.

Proponents: No. The status of the Canal Zone is not the same as that of Alaska, Louisiana or, for that matter, the Virgin Islands.

The 1903 treaty is clearly different from such treaties of cession as the Louisiana Purchase or the Gadsen Purchase because in the Canal Zone the United States acts under the treaty as "if it were the sovereign" while in the other territories it became the sovereign.

The statute conferring citizenship by birth in the Canal Zone is different from that traditionally applied to persons born in the United States or its territories. People born in the Canal Zone of parents who are not United States citizens do not acquire United States citizenship. But anyone born in the United States or in most any United States territory acquires United States citizenship automatically.

Other territorial purchases by the United States have specified one-time payments for land. But the relationship with Panama has always required annual payments for the rights, powers and privileges granted. Moreover, under the treaty, Panama retains all reversionary rights in the Canal Zone, while the rights of the United States are clearly defined and limited.

Q *Does the United States have sovereignty over the Canal Zone?*

Opponents: Certainly. With the 1903 treaty the United States replaced Panama as sovereign in the zone. And both the 1936 and 1955 treaties reaffirmed United States control over the zone. The payment of $10 million gave the United States full rights of sovereignty in perpetuity.

Proponents: No, it doesn't. The treaty of 1903 did not confer sovereignty, it granted rights that were to be exercised by the United States as "if it were the sovereign." As early as 1905, United States officials acknowledged that Panama retained at least titular sovereignty over the zone. This recognition

was reflected in the 1936 treaty, in which the zone was referred to as "territory of the Republic of Panama under the jurisdiction of the United States."

Q *What have the United States courts held on the legal status of the Canal Zone?*

Opponents: That it is U.S. territory. In the 1907 case of *Wilson v. Shaw* the Supreme Court of the United States said: "It is hypercritical to contend that the title of the United States to the Canal Zone is imperfect and that the territory described does not belong to this nation because of the omission of some of the technical terms used in ordinary conveyances of real estate."

As recently as 1972, the court termed the Canal Zone "unincorporated territory of the United States" over which Congress "has complete and plenary authority" (*United States v. Husband*). Therefore, the modification of the international status of the Canal Zone is a matter requiring the concurrence of both Houses of Congress.

Proponents: Nothing definitive. The rulings of the United States courts do not provide a basis for any definitive conclusion with respect to the international status of the Canal Zone, nor were they intended to do so. Rather, rulings have been made for the sole purpose of extending the effect of a specific provision of United States law to the Canal Zone or of exempting the Zone from its application.

The case of *Wilson v. Shaw* did equate the Canal Zone to territory belonging to the United States, but only to the extent necessary to warrant the expenditure of public funds within the zone.

In other cases, the Court has held the zone to be foreign territory for other purposes. For example, its ports are considered foreign ports for the purposes of the transportation of mail (*Luckenbach Steamship Co. v. United States*). And in the 1948 case of *Vermilya Brown v. Connell*, the Supreme Court described the Zone as "admittedly territory over which we do not have sovereignty".

Q *Is sovereignty essential to the protection of United States interests in the Canal Zone?*

Opponents: Yes. If the Canal is to be operated efficiently for the benefit of all nations, it is indispensable that the United States retain its exclusive sovereignty over the zone. Without such sovereignty, the canal would be subject to nationalization by Panama, and be open prey to Cuba and the Soviet Union.

United States sovereignty over the Canal Zone is infinitely better for United States interests and for the protection of world commerce than any other negotiated arrangement.

Proponents: No. Sovereignty is not central to the basic issue of how best to assure United States interest in the Canal over the long term. A fully functional, open and neutral canal is not contingent upon continued United States exercise of sovereign-like rights. These objectives can be achieved through a new treaty under which rights and responsibilities are shared and the common interests of both countries are realized.

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Q *Will United States citizens employed in the zone be protected under a new treaty?*

Opponents: Probably not. It is unlikely that a new treaty would provide United States employees sufficient protection or guarantee their status. The morale of Canal Zone residents is very low now, as recent labor disputes and opinion surveys have shown. Their morale has been drastically eroded by the belief that the canal will be turned over to Panama and that their jobs will be sacrificed. Whatever protection is afforded under a new treaty would end with termination of that treaty.

Proponents: Of course. United States objectives in the negotiations include a guarantee of fair treatment for United States citizens in the Canal Zone. While the legal status of United States residents will change under a new treaty, any new arrangement will guarantee them the same rights and protections enjoyed by other concentrations of United States employees abroad.

Q *If the 1903 Treaty grants rights "in perpetuity" to the United States, why must the United States negotiate a new treaty?*

Opponents: Why indeed? There is no need for the United States to negotiate a new treaty that surrenders United States sovereignty. The treaty now in force gives the United States, in perpetuity, all the rights it needs to operate and defend the canal and protect United States interests in the canal. The United States should not surrender sovereignty merely because of threats to the canal.

Proponents: Common sense. It is clear that perpetuating the exercise of total United States jurisdiction in the Canal Zone as the United States has for more than 70 years will not assure the long-term interests of the United States, let alone Panama. The treaty signed in 1903 must be revised and adjusted to deal with the new realities of the 1970's—and to respond to Panama's legitimate grievances. Only in this way can the United States preserve the interests the perpetuity clause in the original treaty was designed to protect.

CONCLUSION

This booklet has reviewed the issues involved in the complex negotiations for a new Panama Canal treaty. It has gathered together and explained the facts. It has presented the arguments for and against negotiations.

Now it's up to you.

It is most timely that you share your views on this important subject with other citizens and your representatives in Congress. A more informed American public can help assure that all United States national interests in this vital foreign policy issue are considered and served.

Mr. GEYELIN. The United States presence in the Panama Canal Zone has become the single most symbolic issue in the U.S. relations within the Western Hemisphere. Treaty negotiations have become, in the view of Latin America, a test of the United States' intentions in our relations with our neighbors and of our attitudes toward smaller developing nations. Reactions and attitudes toward the United States' presence in other nations, including those toward the U.S. business community, will be determined to a large extent by the degree of maturity with which the U.S. handles this issue.

The Panama Canal controversy has never been a strictly bilateral matter. The Canal serves not only the trade and commerce of the United States, but that of Latin America and most nations of the world. It has been and will continue to be a world facility. As negotiatons over its control continue, operation of the Canal becomes even more of a global issue.

Many countries are involved in the matter because of their dependence on the Canal for their trade. Because they are exporters of high-bulk primary products which rely on ocean shipping, the developing nations are among the most concerned with the fate of the Canal. The U.S. business community in the hemisphere is, of course, very interested in the economic well-being of those nations and its own uninterrupted trade with them.

An equitable treaty settlement which would be seen as an illustration of a new and mature U.S. attitude toward smaller nations would certainly create a friendlier and more cooperative environment for all Americans living and working abroad. On the other hand, if a foreign policy deadlock occurs, U.S. companies in Panama and the hemisphere could be faced with some of the following problems:

First, if the Panama Canal becomes the object of such bitter political dispute that it results in closure or damage to the facilities, shipping and business interests around the world will be seriously affected.

Secondly, it is likely that an anti-American sentiment in Panama could develop which would adversely affect U.S. business interests in Panama.

Finally, history has shown that unresolved political issues can generate a widespread xenophobia which not only disrupts U.S. diplomatic relations, but also creates an unfavorable trade and investment environment. Indeed, if negotiations on this emotional issue are concluded on an unsatisfactory note, the negative impact could adversely affect all relations between the two Americas.

On the other hand, a responsible new arrangement designed in conjunction with Panama will signify to the Latin American nations a new level of U.S. political maturity and sincere intentions for cooperation with every nation.

To Latin Americans there is more at stake in the Canal than economics. It is an issue which symbolizes pride and independence for Latin America with regard to its historic ties with the United States.

However, the economic significance of the Canal to the Latin American nations is also of primary importance. In fact, nine Latin American countries, which Mr. Rogers just stated, ship over one-

third of their total commerce through the Canal. Therefore, an efficiently-operated and reasonably-priced waterway is of utmost importance to Latin America. For over 70 years the U.S. has provided such a waterway for the use of the hemisphere and the world.

The U.S. has performed this service well, but now most Latin Americans feel that over time, and with U.S. guidance, Panama is capable of the same task. Panama's neighbors realize that as the Canal constitutes one of Panama's major economic assets, there is more than sufficient motivation for the small nation to continue what the U.S. so ably began, the efficient operation of the Canal.

In the 1970s we must face the fact that too often the U.S. presence in the Canal Zone has been an easy target for anti-American sentiment and criticism. Even our friends see this presence as anachronistic and counterproductive to U.S. interests. In the early months of the Carter administration, eight Latin American presidents felt so strongly about this that they sent a letter to the President of the United States, urging him to complete the treaty process as soon as possible.

In addition, the Canal is frequently an issue at meetings between North and Latin Americans, whether it be a cultural, business, or political gathering. You will recall that Venezuelan President Carlos Andres Perez publicly supported the concept of a new treaty during his recent trip to the U.S.

In international fora, the U.S. has also had to face this issue. In May of 1975, for instance, the General Assembly of the Organization of American States unanimously endorsed the concept of a new treaty. Similarly, in the United Nations a substantial number of members expressed their support for the negotiations and in 1973 the United States had to exercise its right of veto to defeat a Security Council resolution in support of Panama's demands.

It should be pointed out that the importance which Latin American and other nations place on this issue has not yet evolved into antagonism toward the U.S. presence abroad. The Council believes that this is because our neighbors are convinced and encouraged by the fact that the U.S. is making an honest effort to resolve this matter with Panama.

Let us summarize by saying that our negotiations with Panama are not perceived by the business community or by our counterparts in Latin America as a weakening of the U.S. nor as a threat to our national defense. Rather, our willingness to pursue negotiations is testimony to our belief in the sovereignty of nations and the right of self-determination, and to our sincere wish for global cooperation. We recognize, as will the rest of the world, that the conclusion of an equitable agreement will be proof of our strength as a nation and as a world leader.

Thank you.

Mr. METCALFE. Thak you, Mr. Geyelin.

We will next hear from Mr. Yale Ferguson.

Mr. Ferguson.

STATEMENT OF MR. YALE FERGUSON

Mr. FERGUSON. Thank you, Mr. Chairman.

I have prepared a somewhat lengthier statement than I can possibly get through in the ten minutes allotted to me. So I would simply ask your permission to have that statement incorporated into the record.

Mr. METCALFE. I will ask for unanimous consent. Hearing no objection, it will be entered into the record.

[The prepared statement of Mr. Ferguson follows:]

STATEMENT OF YALE H. FERGUSON, PROFESSOR OF POLITICAL SCIENCE, RUTGERS UNIVERSITY, NEWARK, N. J.

The subject of this hearing today is "the vital international relations interests of the United States in the Panama Canal and the Canal Zone." This is felicitous phrasing, for, I believe, the international relations interests the United States has at stake in the present controversy over the canal are indeed "vital" and, for that matter, are perhaps the only U.S. interests involved that should be so regarded. Our economic and military interests in the canal and the Zone, which have been the focus of the previous two days of hearings, are undeniably important; but, in my view, they are of quite a lesser order of importance.

In any event, the thrust of my testimony is that our major interests can now best be served by concluding a reasonable new agreement with Panama along the lines of the one that currently appears to be in the final stages of negotiation—providing for a gradual and orderly transfer of the U.S. role in the administration and defense of the canal to Panama over the balance of the century, while assuring that this international waterway will remain open on a nondiscriminatory basis.

Before zeroing in on the likely international relations consequences of our success in concluding such an agreement, or of our failure to do so, I should like to address briefly several

central arguments often raised by those who oppose any substantial change in the status quo. To keep this statement to a manageable length, I shall not address the issues of repayment to the United States for the original construction cost of the canal, the aid for modernization of the canal and redevelopment of the Zone that the Torrijos government is reportedly seeking, the future employment prospects of U.S. civilians in the Zone, or the capacity of the Panamanians to operate the canal. Possibly, we can get to some of these issues in the question session after the formal testimony.

Sanctity of the present treaty. Critics of the current negotiations are prone to insist "a treaty is a treaty," that is, that the treaty of 1903 granted the United States its "as-if-sovereign" rights "in perpetuity." The reasoning goes that the treaty is no less legally binding in 1977 than it was nearly three quarters of a century ago.

This position neglects, in the first instance, the rather shady circumstances under which the treaty was originally concluded. The Theodore Roosevelt Administration helped engineer a convenient revolution in Panama; Secretary of State John Hay and a French commission agent, Philippe Bunau-Varilla, signed the treaty at Hay's home two hours before the official negotiating team from Panama arrived; and the treaty was ratified in haste and under considerable duress. The treaty was an object of controversy from the outset. Even Hay admitted privately to a U.S. Senator: "[The new treaty is] vastly advantageous to the United States, and we must confess, with what face we can muster, not so advantageous to

Panama. ... You and I know too well how many points there are in this treaty to which a Panamanian patriot could object."

The substance of the treaty thus decidedly reflected the circumstances of the time. One contemporary defender of U.S. "rights" has commented: We ought to hang on to the canal. "We stole it fair and square." He did hit painfully close to the truth, although I have to reject his policy prescription and his remark does not do justice to the impressive technological, human, and financial contribution the United States made in constructing the canal.

Not only is the treaty a dubious "contract" in light of its origins, a great many things have changed in the last seventy-four years—the United States role in Latin America, Latin America's own role in the international system, and the international system itself. The international legal doctrine of rebus sic stantibus fundamentally changed conditions allowing for abrogation of binding treaty obligations, would clearly seem to apply. The broad rights granted to the United States appear especially anachronistic, not to mention the "in perpetuity" clause. In the real world, no treaty—and precious little else—endures "forever."

Tolls. It is sometimes maintained that canal tolls are likely to increase dramatically if the United States no longer retains direct control over them.

In fact, tolls are almost inevitably going to have to rise somewhat in the years ahead to support adequate maintenance and modernization of the canal. However, the likely impact on the

price of goods shipped to and from the United States via the canal would be modest. A 1974 Department of Commerce study concluded that even an improbable 200 percent increase in tolls would raise the prices of affected products less than five percent. It is also significant that eight countries (Nicaragua, El Salvador, Ecuador, Peru, Chile, Colombia, Guatemala, and Costa Rica) plus Panama ship a substantially higher percentage of their ocean cargo through the canal than the United States. There are, as well, other major users of the canal, including Japan, Taiwan, South Korea, Mexico, New Zealand, Canada, and the Phillipines. Hence the United States would not stand alone in lobbying against undue increases in tolls. ~~For example, at the Organization~~ of American States meeting in Grenada last month, various ~~canal users indicated by resolution~~ that they were opposed to any increase which was not mandated by the actual costs of operating and maintaining the canal.

On the other hand, the best guarantee against skyrocketing tolls will continue to be the growing competition the canal faces from alternative transit routes. Traffic through the canal has already begun to diminish partly because of increased transshipment across the continental United States (a "minibridge" system combining rail and ocean transport from the U.S. East Coast to the Far East was inaugurated in 1972), greater use of the "superships" (tankers and bulk cargo vessels) that are too large for the canal and offset with speed the cost of traveling longer distances, and the reopening of the Suez Canal. A 1973 study commissioned by the

Panama Canal Company pointed out that a rise in tolls on the order of just 25 to 50 percent would probably result in decreased revenues from shipments of a number of commodities, including bananas, sugar, and crude oil.

Ideology of the Panamanian Government. Some who oppose a change in the treaty persist in labeling the Torrijos regime "Marxist," "Communist," "socialist," "leftist," and/or "radical."

Far more accurate labels would be authoritarian, nationalist, reformist, pragmatic. Torrijos undertook a limited land reform, nationalized some foreign enterprises, established cordial relations with the Castro government in Cuba, promulgated an ill-considered law designed to protect workers' tenure, and (of course) has pressed hard on the canal issue. Yet, for all the hard bargaining and rhetoric, Torrijos has exhibited remarkable flexibility and patience over nearly a decade of canal negotiations, and, characteristically, he abandoned the worker-tenure provision when it met vehement resistance from business groups. Moreover, it is difficult to associate any "leftist" label with a government that has made Panama a haven for international banking interests.

Nevertheless, one obviously cannot absolutely rule out the possibility of ideological shifts under Torrijos or succeeding governments. Panama has a tradition of political instability, and there are serious economic problems and social strains quite apart from the canal issue. But no Panamanian government is going to be able to tolerate foreign control of the country's leading resource for many more years, and a failure to resolve

this situation clearly strengthens the appeal of those who are inclined to leftist radicalism and violence.

Rather than speculating about the future ideological course of Panamanian governments, it is perhaps more practical to stress the factors likely to restrain them—whatever their orientation—from "irresponsible" actions regarding the canal.

Discriminatory treatment of the United States. Presumably, any new treaty will contain certain guarantees that the canal henceforth will be operated on a neutral, nondiscriminatory basis. However, some who are resisting treaty revision ask, what if Panama should at some future date renege on its agreement? What if the United States were to be charged "special" high tolls, or, worse yet, what if the Panamanian government—as a protest against U.S. policies or a bargaining maneuver—were to attempt to close the canal to U.S. commercial and/or military transit? Though a U.S. two-ocean navy relying increasingly on large vessels and submarines greatly lessens our need and capacity to use the canal for movement of warships, the Vietnam experience demonstrated that the canal may still be important to us for the purpose of supplying our forces abroad.

Treaty guarantee or no guarantee, discriminatory action by the Panamanians is highly unlikely for several reasons. First, such action would obviously be a destabilizing factor in the totality of canal operations, income from which accounts for about 30 percent of Panama's GNP. Second, the controversy generated would vastly undermine foreign investor confidence in Panama and specifically

the banking industry that the government hopes will play a strong role in domestic economic growth. Third, other major canal users could be expected to protest the discriminatory treatment. Last but certainly not least, if there were no other alternative, the United States could and no doubt would resort to whatever self-help measures were deemed essential to protect its unrestricted access to the canal. As the authors of one article on the treaty negotiations put it, "closure of the canal to U.S. ships or cargo, for whatever reason, is conceivable only if Panama were prepared to go to war with Washington."

Under these circumstances the United States, rather than Panama, would be the injured party and Washington could proceed with confidence of sympathy from key sectors of the international community. As we will emphasize, such sympathy would definitely not attend U.S. efforts to defend its present sovereign-like rights over the canal and the Zone.

Defense of the Canal and U.S. military activities in the Zone. Some opponents of a new treaty maintain that any major change in U.S. control and military presence in the Zone will leave the canal inadequately defended.

The actual situation, military experts concede, is that the canal is virtually indefensible in the event of a large-scale conflict. Moreover, unless the United States is really prepared to garrison the Zone with 50,000 to 100,000 troops, the canal will also continue to be extremely vulnerable to guerrilla attack or sabotage. As has

often been observed, a carefully placed lunch pail stuffed with dynamite could destroy a sluiceway, which might require as much as two years of rainfall to refill. It should go without saying that sneak attacks of this sort, as well as riots and other violence, are more likely to happen when the Panamanian authorities and public are incensed about United States "occupation" of their national territory than when Panamanians themselves are engaged in protecting a vital national resource.

Aside from defense of the canal proper, of course, the United States is concerned about maintenance of bases, a jungle warfare training school, and other military facilities in Panama that Washington sees as additionally or primarily useful for hemispheric defense. However, given Panamanians' growing resentment over military activities on their territory that are only tangentially related to the canal and the questionable legality of some of these under the 1903 treaty, a marked reduction in the scope of the U.S. military presence in Panama appears inevitable regardless of the issue of formal treaty revision.

Against this background, let us now turn more directly to the likely international relations consequences of a United States decision either to accept a new treaty or to "tough it out" with the existing one.

The key point here is that United States unilateral control and occupation of the canal and the Zone is almost universally regarded as a deplorable vestige of "colonialism." This is an

emotional issue—even more so, I believe, for Latin Americans than for U.S. citizens who are nostalgic about the past—and it may rapidly be transformed into an explosive issue.

The need for a new treaty providing for gradual reversion to Panama of the sovereign-like rights held today by the United States is one matter on which the Latin American states stand officially united. This is the case whatever commercial use they make of the canal, whatever their concern about possible toll increases, and whatever private reservations some of them (especially rightist regimes) may have about the Torrijos government.

However, it should be stressed that among Panama's strongest supporters are precisely those governments—Venezuela, Mexico, Costa Rica, and Colombia—on whom the Carter Administration must rely if it is to rebuild a measure of inter-American cooperation and respect for human rights in the hemisphere. Governments like these should be our closest associates in Latin America, and our relationship will become increasingly strained as long as the Panama issue remains unresolved.

The need for a change in the 1903 treaty has been a persistent theme in the 1970s not only in regional forums like the OAS but in other international settings as well. The United States was placed in the embarrassing position of vetoing a U.N. Security Council resolution supporting Panama in March, 1973. All other members of the Security Council, except the United Kingdom (which abstained), voted against us. In an unprecedented move in May, 1975, Latin

American governments symbolically re-elected Panama as their regional representative on the Security Council a mere two years after the expiration of its previous term. Panama has also rallied solid support from successive international conferences of non-aligned states.

To date, as I assess it, the general assumption, or at least hope, prevailing both in Panama and elsewhere has been that some solution to the impasse over the treaty will be found. Should this atmosphere of cautious optimism suddenly be shattered by Congress's rejection of a new treaty, or should violence break out in the Zone that would involve the use of United States troops against Panamanian citizens, resentment would overnight escalate into outrage. It would be David versus Goliath.

The United States would be vociferously denounced by Latin American, other Third World, and (naturally) Communist spokesmen from every available international rostrum. Incidents of violence, as in 1964, would almost certainly lead to Panamanian charges of U.S. "aggression" in the OAS. In 1964 the hemisphere organization adopted a conciliatory posture, but on a future occasion the outcome could very well be not only verbal castigation but also formal condemnation under the Charter. A wave of anti-American sentiment would sweep the hemisphere that would far exceed the strongly negative reaction in many quarters to U.S. armed intervention in the Dominican Republic in 1965, which plunged the OAS into disarray and from which the inter-American relationship in a broader sense

has never entirely recovered. United States businesses in Panama would be directly threatened, and the receptivity for U.S. investments throughout much of Latin America would, to say the least, surely not be improved.

In short, a confrontation over Panama would deal a staggering blow to the United States image in Latin America and the world, with serious implications for a host of U.S. interests ranging far beyond the Canal Zone.

In my view, the American public—faced with nearly unanimous international criticism of their country's "colonialism," a fuller knowledge of the facts gained in a crisis context, and the spectacle on their TV screens of U.S. soldiers shooting at Panamanians—would soon demand a settlement. The central question thus appears to me to be not whether we will have a new Panama treaty, rather when will we have one, and what will be its terms? Before or after a major international crisis has erupted? The terms now being negotiated, or the terms we will have to accept once our own intransigence has placed us on the defensive?

Intransigence on Panama will not be regarded by the international community as a sign of strength but as the bravado of a bully, masking basic insecurities, and as ultimately foolhardy in the extreme because we would be bucking nothing less than the anti-colonial tide of modern history. We should recall, a year after the Bicentennial, that this tide was one that our own American Revolution began, and that we deliberately retreated from empire

soon after our brief flirtation with the idea around the turn of the century. It is simply inappropriate that Panama should be for us what Algeria was for France, or Angola, for Portugal.

On the other hand, our acceptance of a reasonable new treaty will not be taken as a sign of weakness but of strength, consistent with our values as a nation, with the anti-colonialism that we have so often preached to others, and with the constraints of the dangerous world in which we all have to live. By reaching an accommodation we can yet add to our country's prestige and remove a formidable barrier to improved relations with Latin America and the less-developed South. Panama should therefore not be seen as a potential defeat but as an opportunity to demonstrate how rationally and responsibly a truly "great power" can act.

Mr. FERGUSON. Thank you. I will amplify a few points and read that portion of the statement that refers directly to our vital international relations in the Panama Canal or, more properly, as I see it, our vital international relations interests in a new Canal settlement.

When I was in the building yesterday, as a matter of fact, I was leaving off the copies of my statement, I happened in on the hearing and I heard the exchange between the congressman from California and General Graham as to what is and what is not a vital interest of the United States.

General Graham said he would have to define vital interests as something touching upon the very survival of this country, something like our nuclear deterrent. Mr. Dornan commented that once one goes beyond this narrow definition, the concept of what is vital becomes a highly subjective proposition. I could not agree with that asessment more.

In fact, subjectivity permeates the entire foreign policy-making process. What we nearly always have are various courses of action available to the United States, each course of action carrying with it certain benefits and costs that are themselves not always clearly perceived.

It does seem to me, however, that if one were somehow to survey the subjectivities of most of those who are really informed about the Canal issue, that is our diplomats, our enlightened multinational business and military spokesmen, the emerging consensus is that our various interests can now best be served by concluding a reasonable new treaty with Panama. That is, the benefits of such a

course of action outweigh the costs or, conversely, that the costs of attempting to maintain the status quo are likely to be so high as to threaten the very benefits that the opponents of change would hope to achieve by standing pat.

As I have tried to suggest in my statement by examiing some of the arguments often raised by opponents of a new treaty, efforts to cling to the status quo in the present context would actually work against our undeniably important interests in having a canal that is militarily secure and open to U.S. commerce and military supplies.

It is my contention that our international relations interests in a Canal settlement are more vital, that is in the broad sense of importance to us, than some of our other interests. But I would stress again that the policy implications of our international relations interests coincide with those that flow from our other interests, pointing to the need, the pressing need for a new treaty.

Let me turn more directly to the likely international relations consequences of a U.S. decision either to accept a new treaty or to tough it out with the existing one.

The key point here is that United States unilateral control and occupation of the Canal and the Zone is almost universally regarded as a vestige of colonialism. This is an emotional issue, I believe even more so for Latin Americans than for Americans who are nostalgic about the past——

Mr. DORNAN. Excuse me, Mr. Ferguson. Are you tracking your written testimony now?

Mr. FERGUSON. Yes, I am.

Mr. DORNAN. What page are you on?

Mr. FERGUSON. Page 8, Mr. Dornan, and now we are on top of page 9.

Mr. DORNAN. Thank you.

Mr. FERGUSON. —and it may rapidly be transformed into an explosive issue.

The need for a new treaty providing for gradual reversion to Panama of the sovereign-like rights held today by the United States is one matter on which the Latin American States stand officially united. This is the case whatever commercial use they make of the Canal, whatever their concern about possible toll increases, and whatever private reservations some of them—especially rightist regimes—may have about the Torrijos government.

However, it should be stressed that among Panama's strongest supporters are precisely those governments—Venezuela, Mexico, Costa Rica, and Colombia—on whom the Carter administration, I might say any administration, must rely if it is to rebuild a measure of inter-American cooperation and respect for human rights in the hemisphere. Governments like these should be our closest associates in Latin America, and our relationship will become increasingly strained as long as the Panama issue remains unresolved.

The need for a change in the 1903 Treaty has been a persistent theme in the 1970s not only in regional forums like the OAS but in other international settings as well. We have already spoken about the UN Security Council resolution. In an unprecedented move in May of 1975, Latin American governments symbolically re-elected

Panama as their regional representative on the Security Council, a mere 2 years after the expiration of its previous term. Panama has also rallied solid support from successive international conferences of nonaligned states.

To date, as I assess it, the general assumption, or at least hope, prevailing both in Panama and elsewhere has been that some solution to the impasse over the treaty will be found. The 1974 Kissinger-Tack principles contributed to this assumption. Should this atmosphere of cautious optimism suddenly be shattered by Congress' rejection of a new treaty, or should violence break out in the zone that would involve the use of United States troops against Panamanian citizens, resentment would overnight escalate into outrage. It would be David versus Goliath.

The United States would be vociferously denounced by Latin American, other Third World, and—naturally—Communist spokesmen from every available international rostrum. Incidents of violence, as in 1964, would almost certainly lead to Panamanian charges of U.S. "aggression" in the OAS. In 1964 the hemisphere organization adopted a conciliatory posture, but on a future occasion the outcome could very well be not only verbal castigation but also formal condemnation under the charter. A wave of anti-American sentiment would sweep the hemisphere that would far exceed the strongly negative reaction in many quarters to U.S. armed intervention in the Dominican Republic in 1965, which plunged the OAS into disarray and from which the inter-American relationship in a broader sense has never entirely recovered. United States businesses in Panama would be directly threatened, and the receptivity for U.S. investments throughout much of Latin America would, to say the least, surely not be improved.

In short, a confrontation over Panama would deal a staggering blow to the United States image in Latin America and the world, with serious implications for a host of U.S. interests ranging far beyond the Canal Zone.

In my view, the American public, faced with nearly unanimous international criticism of their country's "colonialism," a fuller knowledge of the facts gained in a crisis context and the spectacle on their TV screens of U.S. soldiers shooting at Panamanians, would soon demand a settlement. The central question thus appears to me to be not whether we will have a new Panama treaty, rather when will we have one, and what will be its terms? Before or after a major international crisis has erupted? The terms now being negotiated, or the terms we will have to accept once our own intransigence has placed us on the defensive?

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On the other hand, our acceptance of a reasonable new treaty will not be taken as a sign of weakness but of strength, consistent with our values as a nation, with the anti-colonialism that we have so often preached to others, and with the constraints of the dangerous world in which we all have to live. By reaching an accommodation we can yet add to our country's prestige and remove a formidable barrier to improved relations with Latin America and the less developed South. Panama should therefore not be seen as a potential defeat but as an opportunity to demonstrte how rationally and responsibly a truly "great power" can act.

Mr. METCALFE. Thank you, Mr. Ferguson.

And now we will hear from Ms. Prewett.

STATEMENT OF MS. VIRGINIA PREWETT

Ms. PREWETT. Mr. Chairman and members of the subcommittee:

My name is Virginia Prewett. I am going to speak about myself just a moment or two because I am faced with some tremendous fire power here at this table.

As a woman, I don't have a commanding voice. Women have not functioned as I am functioning here long enough not to need some establishment of their bona fides when they do. So, I am an analytical journalist specializing in Latin America, on which I have published three nonfiction books. I have lived in Latin America for a number of years, and have worked steadily in the Latin American field for more years than I care to say. Since I mean to make a different kind of statement here, I feel it is important for you to know my professional background in some detail.

Since the late 1950s, I have written a weekly column on hemisphere events distributed by the North American Newspaper Alliance to about 160 newspapers. These include a leading newspaper in nearly every sizable American city.

For 13 years until the Washington Daily News ceased appearing in 1972, I wrote a column on Latin America in that paper three times a week. Earlier, I wrote such a column weekly for the Washington Post. Since 1972, I have contributed to the Post, the Star and the National Observer here. I have done radio news comments on Latin America for both the Canadian and the British Broadcasting Corporations. As you noted in your introductory remarks, I have contributed to such magazines as the Atlantic Monthly, Foreign Affairs Quarterly, The Reader's Digest and others, always on Latin American affairs.

In addition, I have published for 7-1/2 years a weekly newsletter on Latin America that is read in many Washigton, New York and Latin American power centers.

My specialty as a reporter is testing the conventional wisdom against my own experience and extensive time-tested sources. My Latin American experience has been unconventional. For instance, I have farmed in the Brazilian backlands, an experience of rare educational value.

In the past 2 years, I have published scores of news reports about the Panama Canal, the proposed treaty and the issue as it affects both Latin America and the U.S. Last summer, I did exhaustive

research in the pros and cons of the issue for publication as an article in Sea Power Magazine. I notice that Mr. Henry Geyelin entered as part of the record of these hearings a lengthier study prepared for the Council of the Americas. I assume that this statement I am now reading will also be a part of that record. Following Mr. Geyelin's precedent, I would like to introduce the text of my Sea Power article into the transcript of these hearings.

I have been asked by the subcommittee chairman to address the subject of the Canal treaty issue from the perspective of the vital interests of the U.S. in the Panama Canal and Zone, and especially the relationship of the Canal and Zone to U.S. foreign policy objectives.

The perspective that I take may be different from those of most witnesses here because I have no vested interest at all in one or another solution for the Panama treaty issue. I can understand the concern of the New York banking and business community in view of the huge debts Panama owes in the U.S., and the threats, some of which have been mentioned here. There are, moreover, according to the Wall Street Journal, over $8.5 billion in offshore funds on deposit in Panama, and this is a mighty incentive for both New York and Washington to wish to please a demanding Panamanian regime. I can understand the hope of my good friends at the State Department to remove from center stage the political histrionics of Panama's Omar Torrijos.

Further, I thoroughly understand the rationale offered by a host of unversity internationalists whose career advancement may well be linked to the "let's not be beastly to the Third World" doctrine. But my experience, my observation and my identification with the interests of the general public give me a different perspective.

As illustration of the different kind of thinking you may expect from this witness, I raise this question: Why is it that even Panama's Omar Torrijos, whose government is a thinly legalized military dictatorship, promises Panama's people a referendum on the proposed new treaty, yet United States leadership apparently has never remotely considered offering our people such a chance to express their opinions on the matter?

From my perspective, my pro-treaty friends in the New York business world and in government, although they urge the treaty as a measure that will soothe Latin American resentments, assure hemisphere stability and improve relations, are in fact like men trying to put out a fire by throwing gasoline on it.

Important leadership sectors in Latin America, usually on the left, nurture a low-burning fire of complaint against the United States, as I am sure we will all agree. I will trace how this has grown from complaint to complaint/demand and, in the case of Panama, to demand/threat. If we wish to encourage the development of more and costlier complaint/demands into further demand/threats by compensating Panama, then we should conclude the Kissinger-Tack treaty, as outlined in the Kissinger-Tack agreement. But such a course is most certainly not in the immediate or in the long-term national interest and since this is so, is not a desirable foreign policy objective.

Before more about the inadvisability of rewarding complaint/demand/threats in our foreign relations, I want to sketch briefly how the present treaty negotiations began.

After the 1964 riots in Panama—which Treaty Negotiator Ellsworth Bunker at the time told the OAS were the work of Castro-Communist agents—the Johnson administration negotiated a complex of treaty drafts which both Panama and the U.S. finally dropped. The issue sank out of prominence until late 1973. At that time, Henry Kissinger, who had ignored and neglected Latin America until then, got a sudden shock in the Arab oil embargo and perceived the strategic importance of Latin America. He asked State Department aides to prescribe a program to repair relations with Latin America, and to do so quickly.

Kissinger's aides suggested a "New Hemisphere Community" concept, and advised him to ease the boycott on Cuba, and negotiate a new treaty with Panama as courtship gifts to Latin America. In January 1974, Kissinger dramatically flew to Panama and signed an agreement to hand over the Canal eventually.

The Latin Americans flatly rejected the Kissinger "New Community" idea, and almost failed to go along with partially lifting the Cuban boycott. But Kissinger was stuck with his gratuitous promise to give the Canal to Panama.

When Panama's Torrijos saw how successful the Arabs were in using the oil threat with the U.S., he forthwith began to use the threat of Canal sabotage to make the U.S. honor Kissinger's mistake. Torrijos added threat to the renewed long-standing complaint about the U.S. presence in Panama.

The complaint strategy is old in Latin America. It is rooted in ordinary nationalism. It was distilled by Latin America's struggle to free itself from the Spanish crown. Before World War II, a far-flung Nazi propaganda machine identified the British and Americans as the new imperialists in Latin America, and revived and revitalized the complaint theme. Since then, decades of Marxist propaganda, intensified under Castro, have done the same.

Though Latin Americans time and again have responded warmly when Washington remembered to notice the region's existence, some Latin Americans have not needed outsiders to keep alive their complaint strategy. Gradually, these leaders have evolved a system of eocnomics founded on the premise that the industrialized countries have "done 'em wrong." Many of the wrongs, or accepted practices reinterpreted as wrongs, that they agitate against have indeed been remedied by the U.S.

The complaint strategy, based on blaming foreigners for many Latin American troubles, has become sophisticated as the Organization of American States, the United Nations, and many multinational institutions clustered around them have been created. We have two generations of new international banking institutions that sprouted out of the complaint strategy, and a galaxy of international committees and commissions.

Before the OAS and the UN provided first Latin America and then the whole underdeveloped world with spotlighted stages for well-orchestrated complaints, the old Inter-American Conferences were the staging ground. They taught the Latin Americans to get together to complain.

It must be said here that this witness was for years a pioneer in reporting on and endorsing editorially many of the changes in hemisphere relations that came about through the Latin American exercise of the complaint/demand strategy, but the world has moved along.

The underdeveloped world saw Fidel Castro, then North Vietnam, and finally the Arab oil states, make the U.S. back down in crucial tests. A profound change occurred after 1973 in the complaint/demand strategy in Latin America. As mentioned, on the Canal issue the U.S. was presented by Panama with a complaint/demand converted into a demand/threat.

The point I wish to underline here most seriously is that the Panama Canal issue, blown up as it is today, is not by far the only demand nor the most costly one incubating among Latin Americans. Let me name just two that all here will recognize. In those very spheres from which sprang approval for the Kissinger-Carter concessionary treaty concept, Latin American specialists in complaint/demand are asking for something called "access to U.S. technology."

Ultimately, what they are asking is for the U.S. to give them, presumably at public expense, technology that this country now exports for a return of over $4 billion a year.

Another complaint/demand bubbling on the cooker is called "debt relief"—or, in Spanish, blanqueo, a whitewash wiping out of foreign debts. That is a complaint/demand that may become a demand/threat for Latin America to be relieved somehow of the debt of many billions the region now owes, and in the next few decades may owe, overseas. As with the Panama Canal, in the end this would probably be at U.S. taxpayer expense.

To reiterate, if the U.S. complies with the demand/threat to hand over the Canal and Zone to Panama by the year 2000, this will solve nothing in U.S. hemisphere relations. Instead, it will stimulate grave problems, new demand/threats. Several features of the proposed treaty indeed guarantee crises later, but we are not here to discuss the details of the treaty as we know them.

What the United States urgently must do is consider its total relation with Latin America and the developing world in the light of today's realities. U.S. policies for the developing countries cannot be dominated by threats, by small nations in combination, else we lose control of our foreign affairs.

If U.S. foreign policy's proper objective, promoting the national interest, is to be achieved, a limit must be set at the point where complaint ceases to be a matter of true negotiation and the situation becomes one of demand/threat. For beyond that point, real negotiation does not take place, whatever the stage-managed appearances may be. Under a gun there is no such thing as balanced negotiation.

It should be pointed out that one main rationale for the Kissinger promise of a new treaty has been overrun by events. The chief rationale, besides that of keeping Panamanian extremists from having a shot at sabotaging the Canal, was to sweeten U.S. hemisphere relations. But, in the interim, measures taken by Congress and the Carter White House in the name of human rights have alienated most of South America and most of Central America.

Whatever Latin American governments may say in public, at this stage a Kissinger-Carter Panama Canal treaty will not improve U.S. relations with these alienated countries. If the courtship gift of the Panama Canal could not sweeten relations with the hemisphere in 1974, much less will it do so today. The U.S. sacrificial gesture will only encourage new demand/threats.

There is a severe loss of credibility for Carter's human rights crusade when the world sees Washington penalize various Latin American regimes accused of violating human rights while the White House favors the enormous concessions proposed for Panama's Torrijos. The world knows that Torrijos exiles dissidents, and stands accused of grievous human rights violations attested in reports of the Panamanian Committee for Human Rights. Even the 1977 State Department Report on Human Rights, although it treated the Torrijos regime kindly, had to report that Panama is "not free."

In closing, this vignette: In a discussion with a Latin American who was repeating old charges alleging U.S. exploitation of his region, I suggested that the proposed Panama Canal treaty should go a long way toward satisfying his and Latin America's complaints. We were sitting at a table having coffee. He picked up a single sugar cube from a full sugar bowl on the table and said contemptuously, "It's no more than that."

I will add as a postscript that I am saying what we should not do; I am also prepared to discuss what, based on this premise, I think we should do about Panama.

Thank you.

[Copy of "Sea Power" follows:]

The Panama Canal: Past and Present in Perspective

Is a New Treaty Needed? The Arguments Pro and Con

From Sea Power Magazine, August, 1976

By VIRGINIA PREWETT

Virginia Prewett is a syndicated columnist on hemispheric and Latin American affairs.

WAR, as the saying goes, is far too important a matter to be left to generals. By the same token, some international treaties are perhaps too important to be left to diplomats. A case in point may well be the U.S. treaty with Panama now being negotiated which would eventually, it seems, yield long-held U.S. rights to the Panama Canal and the ten-mile wide Zone of which it is the centerline.

In the United States, there are two views on the future of the historic waterway, which many consider the most "American" feat of the young Republic's age of growth and building. Many fractions of fact and history combine to scramble issues, however, making difficult the U.S. public's clear view of them. But critical decisions apparently must be made soon, and those decisions should have the U.S. public's "advice and consent"—which, in a democracy, requires that the public be informed.

One view is rather straightforward: The Panama Canal and Zone belong in perpetuity to the United States, and Washington should not give them up.

But opposite opinion supports the on-going treaty negotiations. The spokesmen for a change advance a wide range of arguments—political, economic, and legal.

The current chapter of the story began on 7 February 1974, when Secretary of State Henry Kissinger signed a joint "Statement of Principles" in Panama to start negotiations. The first and second of eight points in the statement read as follows:

(1.) The treaty of 1903 and its amendments will be abrogated by the conclusion of an entirely new oceanic canal treaty.

(2.) The concept of perpetuity will be eliminated.

On 9 June 1976, according to a UPI dispatch from

Almost a mile long, the locks at Gatun are one of the world's largest poured concrete structures. Ships are either raised or lowered approximately 85 feet in three steps during a transit. In the background is Gatun Lake. (Panama Canal Co. photo.)

Santiago, Chile, Panama's Foreign Minister Aquilino Boyd said of the U.S. negotiators: "In a vague way, they talk of accepting a term of from 30 to 50 years for the new treaty." Earlier, on 3 June, an Agence France Presse dispatch said that Boyd set "the year 2000" as the latest date Panama will accept.

Real Control, or 'Nominal'?

But the United States actually contemplates beginning a withdrawal within three years after the new draft is approved, according to Senator Jesse A. Helms (R-N.C.). On 4 December 1975, Helms inserted into the Congressional Record a leaked working paper on the treaty negotiations and his views on its proposals. He concluded that "within three years' time, U.S. practical control of operations and protection of its employees would be phased out. Thus, for only three years of the 25-year treaty would our control be anything but nominal. . . . Moreover, 'the structural position of the Joint Armed Forces [a combined Panamanian-U.S. unit which would be created to defend the Canal] will be reviewed at five-year intervals'—making all talk of a 25-year treaty meaningless."

The United States probably is indeed, as Boyd expressed it, "vague" on crucial treaty terms—because U.S. leadership is divided between opposing views. Approval of the proposed treaty has been advocated by, among others, members of the non-official "Commission on United States-Latin American Relations," who discussed the treaty situation in the so-called "Linowitz Report" published by New York's Center for Inter-American Relations in October 1974. Formally titled "The Americas in a Changing World," the study was given its shorter name after former U.S. Ambassador to the OAS (Organization of American States) Sol M. Linowitz, the ad hoc commission's chairman. But on Capitol Hill resolutions opposing the treaty already have been signed by 39 Senators, enough to block its approval, which requires a two-thirds Senate majority.

There is a surprising diversity of opinion on the issue.

Political figures such as Senator Barry Goldwater (R-Ariz.) have defended the proposed treaty, while a number of state legislatures, including those of Indiana, Maryland, South Carolina, and Virginia, have passed resolutions opposing any "Canal giveaway," as treaty opponents call it.

The public is also opposed to what it perceives as a "giveaway." In June 1975, the Opinion Research Corporation of Princeton, N.J., a leading U.S. pollster, conducted a survey which revealed that 66 percent of the cross-section polled wanted continuing U.S. ownership and control of the Panama Canal—12 percent favored turning it over to Panama, and 22 percent had no opinion. A similar poll conducted on 9-11 April 1976, revealed that 75 percent of the cross-section now favors continued U.S. ownership and control, 12 percent still favor Panamanian ownership, and 13 percent have no opinion.

Other polls conducted by Opinion Research in 1975 and 1976 reveal an alarming lack of factual knowledge about the Canal issue on the part of the U.S. public. In 1976, only 5 percent said they "knew a great deal" about the issue, with 25 percent admitting to a "fair amount" of information—but 70 percent still felt uninformed (as compared with 80 percent in 1975), 39 percent knowing only a "fair amount," 30 percent "very little," and 1 percent confessing they didn't know whether they knew anything or not.

Presidential Promises

A recurring theme sounded by treaty proponents is that three U.S. Presidents have "promised" Panama a new treaty giving up U.S. permanent rights there. And, in fact, President Johnson did speak publicly, on 18 December 1964, of negotiating such a treaty. His statement came after serious disturbances in the Canal Zone that January. President Nixon made a similar statement on 25 October 1970, and the Ford Administration began talks on 7 February 1974 toward developing a new treaty which would eventually cede Zone/Canal jurisdiction to Panama.

However, a complex of three Johnson treaty drafts completed in 1967 were never submitted to Congress (probably to avoid their rejection); it was a negative vote in Panama's own national legislature in 1970, however, which formally killed them. The U.S. Senate's firm (if informal) opposition both in 1967 and again in 1975-76 are a reminder that, under the U.S. system, presidential initiatives, even "promises," do not become U.S. international obligations until the Senate has given its advice and consent.

Advocates of a new treaty also lean heavily upon the argument that the 1964 riots are absolute proof that, unless the United States does make the concessions proposed in the current negotiations, even greater violence will erupt in and around the Zone, perhaps even damaging the Canal.

But before the 1964 incident, Panama had willingly approved a treaty with the United States (in 1955) amending the earlier 1903 treaty to give Panama a larger

Before and after—Construction scene of the "Culebra Cut" (now known as the "Gaillard Cut") contrasts dramatically with more recent photo of ships passing tranquilly through the same general area. (Panama Canal Co. photos.)

return from the Canal, but reaffirming U.S. rights in Panama "in perpetuity." The permanent rights guaranteed in 1903 had also been reaffirmed by a similar amending treaty in 1936.

By the late 1950s, though, the ever-oscillating pendulum of U.S. foreign policy had swung away from interest in hemisphere affairs. As U.S.-Latin American relations cooled in general, Panamanians began demanding that Panama's flag be flown in the Zone as token recognition of Panama's sovereignty. In 1959, the Eisenhower Administration acceded to that demand.

The Kennedy Administration's Alliance for Progress, conceived as a bulwark against the spread of anti-U.S. and anti-democratic ideology through Latin America from the new Castro regime in Cuba, eased hemispheric tensions during the early 1960s, including those of the United States with Panama. But by 1964 Latin American-U.S. relations were under heavy attack from Cuba, and would worsen as the United States began to pay more attention to Vietnam.

Background for Violence

On 30 October 1975, Republican John M. Murphy (D-N.Y.) reviewed, in the Congressional Record, statements reporting how the Canal Zone schoolboy "flag raids" in January 1964 were deliberately escalated into four days of violence by trained subversives. Murphy's review, based on official State Department records, was intended to lend perspective to the "revolution" begun in Panama by Colonel (later, Brigadier General) Omar Torrijos, who in 1968 overturned the constitutionally-elected government of President Arnulfo Arias. The New York Congressman pointed out in his statement that the Communist Party was the only existing one that Torrijos allowed to remain legal in Panama. Murphy said, in part:

Communist ties with Panama are not a recent innovation, nor are they unknown to our negotiators. In the State Department Bulletin, the official record of U.S. foreign policy, dated February 24, 1964–just after violent anti-American riots which led to a four-month break in diplomatic relations with Panama–we read:

"If an investigation is made . . . it will show that violent mobs, infiltrated and led by extremists, including persons trained in Communist countries for political action of the kind that took place, assaulted the zone on a wide perimeter, setting fire to buildings inside the zone and attacking with incendiary bombs. . . . It will show that the Government of Panama, instead of attempting to restore order, was, through a controlled press, television and radio, inciting the people to attack and to violence."

The speaker was the U.S. representative to the Council of the Organization of American States, Ellsworth Bunker–our current Panama Canal Treaty negotiator.

Later, Joseph Califano, counsel for the United States at the OAS hearings [and a key aide to President Lyndon Johnson], outlined some of the findings:

"We know that some of the leaders in the rioting were known and identifiable Communists–members of the P.D.P., the Communist Party of Panama–and people who belonged to the Vanguard of National Action, which is openly and proudly the Castro Community Party in Panama."

There is absolutely no question as to the increasing ties between the current military dictatorship of General Omar Torrijos in Panama and the Castro regime.

"In a July 1975 interview with the Mexico City Excelsior," continued Murphy, "General Torrijos expressed the belief that the return of the Panama Canal to Panama, and the removal of the U.S. military bases, was imminent. In response to the question, 'What if that does not occur?'

Torrijos answered: 'Then we would have to walk the Ho-Chi Minh Trail. The Ho-Chi Minh Trail is long and it exacts a heavy toll in blood.' "

Supporting Murphy's comments—and the Helms statement that "all talk of a 25-year treaty" is "meaningless," a LATIN wire service report of 23 July 1976 quotes Torrijos as asserting, in a press conference, "how indefensible the Canal is" and warning that "by 1977, Panama will lose its patience" if the new treaty is not in force. Torrijos also was quoted as saying, with special reference to the U.S. military position in Panama, that "All this framework that makes the [U.S.] Empire's presence an insolence must vanish in three years."

The 'Military Position'

In hearings held 27-29 January, 2-10 February, and 11 April 1976 before the House Armed Services Committee (then considering the Defense Department authorization bill for fiscal year 1977), General George S. Brown, USAF, Chairman of the Joint Chiefs of Staff, stated what is presumed to be "the military position" on the current negotiations:

> *U.S. interests and objectives in Latin America continue to be threatened by both internal and external forces. The principal military threat is posed by the USSR, which we expect would seek to deny the use of the Panama Canal to the United States in a conflict, and whose naval assets, if forward-based in places such as Cuba, might be able to threaten important shipping lanes. The Soviet Union would not undertake military aggression in the region short of a world war because of the certainty of U.S. counteraction. Nevertheless, the Soviets are continuing to follow a long-range policy of expansion and consolidation of their influence in the region, while undercutting U.S. interests whenever the opportunity arises. . . . Cuba, under Soviet pressure, is concentrating on a policy of attempting to capitalize on local nationalism, the suspicion of many elements in Latin America of the powerful United States, and the increasing tendency among some of the countries toward economic confrontation with the United States. . . .*
>
> *A particularly critical problem is the future status of the Panama Canal. The Panama Canal warrants special emphasis by virtue of its strategic importance and as a common concern of all nations of this hemisphere. The principal threat to the security of the Canal and Canal Zone continues to be mob action, terrorism, sabotage and incursion from the Republic of Panama.*

The Panama Canal Subcommittee of the House Committee on Merchant Marine and Fisheries has provided Congress a digest of various statements made on the issue during 1975-1976 by General Torrijos and others who favor the treaty now being negotiated. Twenty of the statements cited raise the spectre of violence against the United States if the treaty is not concluded and soon ratified.

The compilation also reports that, on 7 January 1976, "Kissinger said that nobody in the United States wants to

The USS JOSEPHUS DANIELS enroute through the Straits of Magellan during Unitas IX, a joint U.S./Latin American naval exercise. (U.S. Navy photo by Arnold A. Clemens.) The much more difficult Straits route (necessary in any case for supertankers and other ships too large to pass through the Canal) adds thousands of miles and many additional days of steaming time to the normal ocean-to-ocean transit.

'give away the Canal as such' but that the United States is trying to avoid a confrontation and possible guerrilla warfare."

Heinl: Smoke Signals

An independent military and foreign affairs analyst, Colonel Robert D. Heinl, USMC (Ret.), presented an opposing view on 1 November 1975, in a column distributed by the North American Newspaper Alliance. An articulate and knowledgeable authority with years of attaché service in Caribbean assignments, Heinl wrote:

> *This theme—of time running out, of a Panamanian tinderbox, of a possible new Vietnam against an immensely vulnerable Canal Zone—is being repeated and amplified here in Washington, particularly by deep-background State Department briefers, whose estimates on this point differ appreciably from those of the Pentagon and intelligence officers. . . .*
>
> *Their estimates are heavily discounted . . . by the U.S. intelligence community. . . .*

Intelligence specialists say no guerrilla movement could exist for long, let alone undertake the major operations called for in an anti-Canal Zone campaign, without knowledge, sanction, and support of Torrijos and the Guardia *[Panamanian National Guard, Panama's military].*

The possibility of Panama being infiltrated by international contingents of Latin American "volunteers" from elsewhere in the hemisphere is similarly discounted.

"Noninterference is still the lodestar of OAS foreign policies," explained one observer who predicted the Latins would confine their support for a Panamanian insurgency to "noisemaking."

What the above seems to boil down to is that the smoke-signals of a Panamanian guerrilla insurgency would most likely emanate not from the fire of an uncontrollable popular movement, but, at first instance anyway, from smoke-machines in the cellar of General Torrijos' National Palace. If this hypothesis is correct, the so-called "Vietnam in Panama" would be a false face for the Torrijos government and simply a device for putting pressure on the United States.

Quotations from Torrijos' supporters, as cited in the Subcommittee compilation, reiterate and reinforce the claim (oft repeated by treaty proponents) that all Latin America would come to Panama's aid in the event of an open clash with the United States. But other indicators are less absolute. At the Sixth General Assembly of the OAS (in Chile, 4-18 June 1976), with the "Panama question" first on the agenda, the Latin American and Caribbean countries present limited themselves to a mild resolution expressing hope that the United States and Panama will "settle peacefully" their differences by the end of 1976.

Earlier, press reports recorded how Panama's Torrijos had sent emissaries around Latin America to invite each country's President to Panama in mid-June 1976. Ostensibly, said wire service reports, the hemispheric presidential gathering was to mark the 150th anniversary of the first New World conference, called the Congress of Panama and held there in 1826; practically, attendance by the various chiefs of state would have been interpreted as support for Torrijos' position on the Canal and Zone.

In the spring of 1976, after Torrijos announced that Cuba's Castro would attend, the wire services reported that a number of the hemisphere's presidents were sending their regrets. The "Presidents' meeting" in Panama was called off.

Justice and Fairness

Political and other considerations aside, there is also a question of "justice"—here referring to the "fairness" of the 1903 treaty, interpreted in widely different ways by treaty opponents and proponents. Some "pro-treaty" examples:

- The House Panama Canal Subcommittee round-up quotes a pro-Torrijos Panama newspaper as asserting that "the infamous theft of the part of the national territory justifies the rebellious attitude of the Panamanian people, especially the young."
- Robert G. Cox, in a supplement to the previously mentioned "Linowitz report," summarizes the events leading up to the 1903 treaty as follows: "On November 2, 1903, at 5:30 in the afternoon, the cruiser USS NASHVILLE arrived at Colón in the Republic of Colombia, its mission to block deployment of Colombian troops. The next day citizens in the Panamanian province revolted and declared their independence. . . . Fifteen days later, the U.S. Government entered into a treaty . . . consisting

The U.S. merchant marine has benefited considerably from use of the Canal, but so have the merchant fleets of virtually all other maritime nations. Shown here: the SL-7 class containership SEA-LAND COMMERCE, passing through the Canal in 1973 on her maiden voyage from Northern Europe to the West Coast to enter transpacific service (Sea-Land photo); and three Soviet ships, passing through the Canal's Miraflores Locks. (Panama Canal Co. photo.)

entirely of language convenient to the United States."

• Panama's Embassy in the United States sent Washington journalists a Xeroxed package in mid-June 1976 reproducing a supplement on Panama published by the London Financial Times (11 March 1975). An article on "Canal Politics" by Hugh O'Shaughnessy therein began: "Some time this year there should be published a draft treaty between Panama and the United States. It will replace successive treaties in 1903, 1936, and 1955 which have given the United States a privileged position as the principal beneficiary of a small country's major asset, the fact that through its territory passes the quickest and easiest route between the Atlantic and Pacific Oceans."

• Chief U.S. treaty negotiator Ellsworth Bunker, speaking in Seattle on 22 May 1975, referred to Panama's complaint that the United States "pays Panama but $2.3 million annually for the immensely valuable rights it enjoys on Panamanian territory." (Other documentation, however—see box, page 29 –indicates that Panamanians themselves have received immensely valuable benefits from the U.S. presence.)

Some rather distinguished historians disagree, incidentally, with more recent interpretations of what really happened in 1903. Historians A. Curtis Wilgus and Raul d'Eça, for example, in their "Outline History of Latin America" (College Outline Series, Barnes & Noble, New York City 1941), note of the 1903 treaty: "Under one of its provisions, the United States guaranteed Panama's independence [of Colombia, from which country Panama had seceded, with U.S. help] and assumed the maintenance of public order in the country." That guarantee ended with the 1936 treaty, by which time Panama had consolidated its independence—presumably in perpetuity.

Captain Miles P. Duval adds support to those who disagree with the assertion that the United States "forced" the Canal on a reluctant and backward people. His "Cadiz to Cathay" (Stanford University Press, 1940—Greenwood Press, N.Y. 1969), documents that a canal route through Nicaragua was preferred by many American experts; a 1901 report by the U.S. Isthmian Canal Commission recommended it. But Panama won the race (and Panamanian independence), thanks to the USS NASHVILLE.

Nothing was "taken" from the Panamanians, either. The United States immediately paid the starveling newborn country $10 million; in 1922 it paid Colombia $25 million—in compensation for Panama's independence, it is fair to note. Another statement inserted by Senator Helms into the Congressional Record (4 March 1975) reports the cost of acquiring the Canal route and Zone to be $166.7 million, a figure also used by other authorities. The largest sums paid for any other U.S. acquisition were $15 million each for the Louisiana Purchase (in 1803) and the Mexican Cession, which included California (in 1848). Alaska cost $7.5 million in 1867.

House Canal Subcommittee figures indicate, moreover, that the United States has spent $1.861 billion in building, improving and maintaining the Canal. Defense Department figures made public by the subcommittee reveal that the United States has spent $6.5 billion, all unrecoverable, on Canal military defense. Various Canal and Zone operating entities, according to subcommittee records based on GAO (General Accounting Office) studies, have recovered $1.125 billion from tolls and other revenue sources, leaving the United States still with an unrecovered investment of $579 million, not counting defense costs.

The QUEEN ELIZABETH 2, largest passenger ship to pass through the Canal, moves through the Miraflores Locks on 25 March 1975– paying $42,077.88 in tolls for the privilege. (Panama Canal Co. photo.) Despite the hefty cost of that transit, it is generally agreed that tolls have been kept extremely low under U.S. management of the Canal, which has thus become in some respects an international maritime public utility.

In the same subcommittee's hearings, Leonard Kujawa of Arthur Anderson & Co., accountants, estimated (on 7 April 1976) that it would cost "between $2 billion and $3 billion"—again, defense costs excluded—to build the Canal today.

The Canal/Zone fiscal picture is confusing, even to alleged experts. A Financial Times article on Panama, titled "The Economy," says that, as things are today, Panama stands to receive "some $60 million in direct revenues" between 1970 and the year 2000. "Under a new treaty," according to the same article, "the estimate of income would run to $1 billion."

But generation of such huge additional revenues would necessitate a drastic increase in Canal charges, which could be counterproductive. House Panama Canal Subcommittee studies indicate that much of today's Canal commerce is "toll sensitive." The panel's experts say that if tolls go up by as much as 50 percent, for example, such shipping would avoid the Canal. The Panama Canal Company is, in fact, already showing a small operating loss—one which House legislators hope to remedy soon.

The image of an impoverished and exploited Panama is, nevertheless, becoming conventional wisdom. Another Financial Times article (11 March 1975) describes Panama's

Facts Refute Concept of 'Exploited' Panamanians

STATISTICS published in the Inter-American Development Bank's series of annual reports, "Economic and Social Progress in Latin America," reveal that Panama, a tiny country in the tropics, has enjoyed and does enjoy economic, health, and social advantages which make it among the most fortunate of the hemisphere's 19 Latin American nations. Statistics in the latest (1975) report, published in late July 1976, are tabulated below.

The IDB statistics demonstrate that Panama's Gross Domestic Product per capita in 1974, the latest year for which complete statistics are available, was $1,052, far ahead of all its immediate neighbors, including Mexico ($771) and Colombia ($451). Indeed, Panama was passed only by Argentina, Venezuela, and Chile. In the 1974 IDB tables, Panama was third in the hemisphere, ahead of Chile.

In the decade 1960-74, says the IDB, the average annual growth rate of Panama's GDP per capita was 4.3 percent, a rate surpassed in all Latin America only by Brazil, which scored only one tenth of one percent better than Panama.

Panama has one of the highest rates of annual population increase in Latin America--surpassed only by Mexico, El Salvador, and Paraguay. Its annual rate of population increase 1970-75 was 3.1 percent. At Brazil's 2.8 percent rate of population increase, Panama's per capita GDP growth rate would have passed Brazil's and been first in Latin America.

The IDB also reveals that in 1975 the cost of consumer articles in Panama rose by only 0.9 percent, the second lowest inflation rate in Latin America. In Argentina the comparable increase was 221.8 percent; in Venezuela it was 6.5 percent; and in Chile 308.2 percent. In Colombia, which would presumably still be administering its former province of Panama if the United States had not guaranteed the latter's independence, the rate of increase in consumer prices was 15.7 percent during 1975.

A rather technical IDB table reveals that, in the period 1970-74, the "non-tax revenues" received by Panama's central government, expressed as a percentage of the country's GDP, were second highest in Latin America, exceeded only by Venezuela's, and reflecting Panama's revenues from the Canal--just as Venezuela's higher percentage reflects returns from royalties and other non-tax benefits from Venezuela's huge oil industry.

The IDB picture of health conditions in Panama is equally striking. Tropical fevers defeated the French in digging the Big Ditch. But U.S. physicians and scientists defeated the endemic, devastating fevers; they sanitized Panamanian swamps and established a better health system which reached far beyond the narrow Canal Zone strip. The IDB reports that Panama's infant mortality per 1,000 live births (1970) was only 31.0, lowest in all Latin America. Argentina's was 60.1, Brazil's 85 to 95, Venezuela's 46.6, and Colombia's 93.8. Bolivia's was 159.0, and Haiti's 149.1.

Panamanians have the fourth best life expectancy in Latin America at birth--66.5 years. Only temperate-clime Argentina and Uruguay and democratic little Costa Rica fare better. At 5.3 per thousand, Panama's mortality rate in 1974 was second lowest in Latin America, bettered only by Costa Rica's 4.9 per thousand.

LATIN AMERICA'S ECONOMIC/SOCIAL DEMOGRAPHICS

A table prepared by the author from the Inter-American Development Bank annual report on "Economic and Social Progress in Latin America" for 1975, issued 20 July 1976.

	Per Capita Gross Domestic Product (1974)	Per Capita GDP Growth Rate (1960-74)	Average Annual Population Growth Rate (1970-75)	Consumer Price Inflation Rate (1975)	Mortality Rate Per 1,000 Inhabitants (1970)	Life Expectancy (1970-75)	Infant Mortality Per 1,000 Live Births (1970)	Literacy Rate	Government Non-Tax Revenues (1974)
Argentina	$1,483	3.0%	1.2%	221.8%	8.4%	68.2	60.1	93.0%	0.4%
Bolivia	271	2.6	2.7	8.4	19.0	45.0	159.0	57.0	0.9
Brazil	759	4.4	2.8	28.3	9.1	61.0	85-95	79.8	0.5
Chile	1,083	1.8	1.8	308.2	7.4	62.6	63.3	89.7	0.7
Colombia	451	2.7	2.7	15.7	9.4	51.0	93.8	77.6	0.4
Costa Rica	755	2.8	3.0	13.6	4.9	69.4	35.0	88.4	1.1
Dominican Republic	612	3.6	3.1	13.6	6.8	60.4	48.7	67.2	1.7
Ecuador	429	3.4	2.9	10.9	10.8	60.6	71.5	75.1	1.0
El Salvador	434	2.0	3.7	11.0	11.1	57.8	58.2	59.5	0.8
Guatemala	620	3.0	2.8	(–1.5)	13.0	53.0	90.0	45.0	0.8
Haiti	154	0.4	1.6	13.6	15.0	50.0	149.1	24.7	1.3
Honduras	373	2.0	2.2	5.6	14.2	58.0	117.6	54.7	1.3
Mexico	771	2.9	4.2	11.8	9.1	64.0	68.0	76.3	0.6
Nicaragua	653	3.9	2.8	n.a.	7.2	52.5	45.0	52.6	1.8
Panama	1,052	4.3	3.1	0.9	5.3	66.5	31.0	84.0	3.5
Paraguay	383	2.3	3.5	9.0	8.9	61.9	84.3	79.7	1.0
Peru	494	3.0	3.0	24.0	13.7	54.6	65.1	67.7	1.7
Uruguay	936	0.3	0.7	44.1	9.8	72.0	40.4	89.8	0.9
Venezuela	1,422	2.0	3.1	6.5	6.3	66.4	46.6	77.1	8.2

benefits from the Canal as "very meagre." But "Spillways," the Panama Canal Company periodical, on 16 May 1976 listed among the "gross payments" made to Panama in fiscal 1974 some $236.9 million in "direct transfers," of which $96.5 million was paid as wages to Panamanians working in the Zone.

Fringe Benefits

From Panama's viewpoint, there have been several other advantages—not so tangible, perhaps—resultant from its special relationship with the Colossus of the North. Tropical fevers had defeated the French in digging the Big Ditch. But U.S. physicians and scientists defeated the fever; they sanitized the Isthmian swamps, to the benefit of the Panamanians as well as the Americans working on the Canal. The waterway, Panama's principal moneymaker, was opened in 1914. As a long-continuing "fringe benefit," Panama to this day has one of the lowest death rates in Latin America, according to the Inter-American Development Bank's most recent annual report on "Economic and Social Progress in Latin America."

The same report also notes that Panama has the highest annual Gross Domestic Product (GDP—Gross National Product minus exports) in Middle America. Among all Latin American countries, Panama's GDP is sometimes topped only by those of oil-rich Venezuela and meat- and wheat-rich Argentina.

Panama has been a more direct beneficiary of Yankee affluence in other respects. Representative Murphy pointed out in the Congressional Record of 30 October 1975 that "Panama is given more U.S. aid per capita then any other country in the world." House Appropriations Committee hearings of 4 December 1973 disclosed that total net direct U.S. aid to Panama in the period 1946-73 was $342 million, a substantial sum in absolute or per capita terms.

International Public Utility

No one denies that the United States itself has also benefited from the Canal, both in shipping convenience and in use of the Canal in four major wars—World Wars I and II, Korea, and Vietnam. But even some of those who criticize the continued U.S. presence in Panama concede that the United States has administered and operated the Canal more or less as an international public utility, to the benefit of all users. Wrote Hugh O'Shaughnessy in the Financial Times article distributed earlier this year by Panama's embassy in Washington: "Though the Panama Canal Company showed a small loss of $1.3 million in the 1973 financial report ... which triggered off a small increase in tolls this year, the dollar cost of transitting the Canal is lower than it was in 1915." O'Shaughnessy considers the low toll rate a subsidy for U.S. shipping. By the same criterion, it's a subsidy for all nations using the Canal.

Dr. James P. Lucier, legislative assistant to Senator Helms, discussed Canal shipping in more general terms in the Spring 1974 issue of The Strategic Review: "Only 16.8 percent of U.S. trade goes through the Canal. But ... statistics reveal that a constant average, down through the years, of about 70 percent of all cargo is bound either from or to a U.S. port. ... When these cargoes are viewed in terms of specific markets ... it becomes clear that dislocations in the U.S. economy could take place if the Canal were closed by accident or design."

A task force of 20 Unitas XII ships from the United States, Argentina, Brazil, and Uruguay enter Rio de Janeiro in November 1971 as Brazilian aircraft pass overhead. (U.S. Navy photo by John Francavillo.) Not only the U.S. Navy, but the navies of most Latin American countries as well as hemispheric defense in general would be impaired if Panama Canal operations were to be disrupted.

Lucier also said that "Latin America's trade dependency upon shipping through the Panama Canal is of great significance. For Chile, 34.3 percent of her trade goes through the Canal; for Colombia, 32.5 percent; for Costa Rica, 27.2 percent; for Ecuador, 51.4 percent; for El Salvador, 66.4 percent; for Guatemala, 30.9 percent; for Nicaragua, 76.8 percent; for Peru, 41.3 percent. ... Panama itself has 29.4 percent of its trade go through the Canal."

Lucier theorized that recent changes in world trade patterns have given the Canal a "new strategic significance." Pointing out, for example, that the Alaskan North Slope will produce far more oil than can be refined on the U.S. West Coast for several years, Lucier said that, unless shipped through the Canal, it will have to be sold to Japan.

The "new strategic significance" is also evident in a direct military respect. " 'Strategic' in the narrower military sense involves the rapid deployment of the fleets," wrote Dr. Lucier, "and with pared-down military budgets the effectiveness of warships is diminished when they are

stretched out around the Horn. The modern Navy emphasizes smaller ships, greater speed, nuclear power, and independent missile capability. . . . Setting aside the possibility of all-out nuclear war, in which the Canal may not be a decisive factor, the Panama Canal will continue to play a major role both tactically and strategically as our Navy keeps the sea lanes open."

Silent Partners

Many well-intentioned treaty supporters want to forget the past, and concentrate on a "new era" of good relations with Panama. In fact, in his Seattle speech, Ambassador Bunker interpreted the treaty he is negotiating as establishing a "partnership" with Panama—one that would stabilize the Canal situation.

Others are not so optimistic. The ranking minority member of the House Panama Canal Subcommittee, Gene Snyder (R-Ky.) on 4 January 1976 cited the 59 changes of government in Panama between 1904 and 1969 as demonstrating Panama's chronic political instability.

The present regime has lasted for eight years, far longer than most. But many Panamanians themselves oppose it, particularly those no longer in Panama. On 25 June 1976, former Panama Chamber of Commerce president Guillermo Ford, exiled in January 1976 with ten other leading Panamanian businessmen for supporting a general strike against Torrijos, made a statement in Miami which was reported in the Congressional Record on 22 July 1976 as follows: "I speak for many thousands of silenced Panamanians to say that we do not want the United States to make the proposed treaty with the oppressive, unconstitutional regime of Omar Torrijos or any of his like."

Ford is not the only Panamanian leader to speak out in opposition to Torrijos. Earlier, on 8 April 1976, William R. Drummond, president of the Canal Zone Police Union Local 1798, AFGE, testified before the Canal Subcommittee that, in February, "all the non-Communist political parties in Panama . . . formally signed an agreement to work together to re-establish . . . democracy in Panama." He also reported that the businesses and homes of Panamanians who had led a business strike on 20-22 January 1976 had been targets of "as much as ten bombings."

The anti-Torrijos faction apparently does more than talk. The Panamanian business community was "partially responsible," Drummond said, for the "boycott" by Latin America's chiefs of state of Torrijos' planned 22 June hemispheric presidential summit in Panama. The businessmen allegedly sent representatives, with excellent results, to ask the presidents not to attend—and they did not attend, as previously noted.

Drummond also said that members of the National Guard (Panama's armed forces) believe that Torrijos is bringing Castro Cubans into Panama. The Zone police spokesman testified that National Guard troop commanders, whom he named, are involved in a "power play" in support of Colonel Garcia against others he described as "leftists."

Not even Torrijos' leftist support is monolithic, apparently. On 22 June, ceremonies marking the 150th anniversary of the Congress of Panama were at last held in that country, attended by OAS ambassadors only, including that of the United States. According to UPI reports, 150 leftist demonstrators hostile to the negotiations marched that day and chanted "Tratado—cochino!" (meaning: "It's a Pig of a Treaty!").

All in all, terrorist-guerrilla threats against the Canal remain the most dramatic argument used to advocate the "Yankee-Go-Home" treaty with Panama. But use of that argument raises a broad issue about U.S. response to terrorist threats. More than once—and notably in January 1973, when U.S. Ambassador to Haiti Clinton Knox and an aide were seized as hostages—the U.S. government has taken the stand that to accede to terrorist threats would only encourage more of the same.

U.S. policy on lesser blackmail has been not as consistent, however. Robert S. Strother wrote in the National Review (1 September 1975) that "A series of concessions begun in the Eisenhower Administration and continued since has not diminished Panama's complaints. On the contrary . . . each concession . . . is taken as an admission of guilt. The position of the United States has been further damaged by what Professor Dozer [University of California historian Donald M. Dozer] calls Panama's 'barrage of misinformation' which is enthusiastically echoed by the world Communist propaganda apparatus, with Radio Havana's powerful transmitters in the foreground!"

State Department transcripts of Havana broadcasts reveal Castro's repeated demands for the United States to get out of Guantanamo, Puerto Rico, and even the Virgin Islands. It is fair to ask, however, that, if the United States yields to terroristic threats on the Panama Canal, where will such pressures stop?

Secretary Kissinger himself, speaking to the United States and its Western allies at the Institute of Strategic Studies in London on 25 June 1976, said "Let us not paralyze ourselves with a rhetoric of weakness." His statement may well deserve factoring into the present debate over the Panama Canal.

That debate will undoubtedly grow more intense in the immediate future. Specialists who favor the treaty will continue to insist that anti-treaty spokesmen have not yet conclusively shown the total rightness of their position. And treaty opponents will just as insistently claim the obverse. What it all boils down to is this: The widest possible airing of facts is urgently needed to inform the American public about the issues pro and con—before any final steps are taken one way or another which could in the long run be injurious to America's own best interests.

One tentative conclusion may already be drawn, however: Whatever else happens, U.S. foreign policy should pay far more attention to Latin America in the future, and the U.S. public itself should become far better informed about that region, especially about the treaty now being negotiated over the Panama Canal.

In the late 1960s, when debate was raging over the Johnson treaties, Washington columnist John Roche wrote, perhaps tongue-in-cheek, that if the Canal is to be "returned" to anybody, it should be to the Colombians. A later version suggests that if the United States actually is "forced" out of Panama it should reconstitute the Zone swamps and fill up the Canal, "restoring the ecology" to what it was in the beginning. ■

Mr. METCALFE. Thank you, Ms. Prewett.

I noted in your introductory remarks you made some apologies. I have not been convinced of the need for those apologies that you made. I do compliment you again on responding on such a short notice, and compliment you on your presentation and I say, certainly, you are an integral part of this very distinguished panel, and in directing these questions to you I will treat you no differently than the other distinguished members of the panel.

Ms. PREWETT. Thank you, Mr. Chairman. My apologies were by way of attempting to explain that I spoke about myself not out of egotism but that in general, not as specifically applied to this hearing, a woman has to make her bona fides clear.

Mr. METCALFE. I have no further comment on women's rights.

I have some questions. I will ask the following questions of the panel as a whole, and I will then ask questions of individual panel members.

To the entire panel I would ask, what similarities and differences do you see in the present Panama situation and the situation which the British faced in the Suez in the 1950's?

Mr. Rogers, would you like to take that one?

Mr. ROGERS. Yes. I suppose there are several differences that are important to note, Mr. Chairman.

One, we are dealing with a lock canal, the management problems of which are somewhat more complicated than a sea level Canal, and hence, because of that difference, a total, immediate turnover is inappropriate and impossible to contemplate.

Secondly, it seems to me we are dealing with different backgrounds of colonial experience. As Dr. Ferguson has pointed out, the Panama Canal Zone, for us, is really the last vestige of an earlier colonial era. In fact, our colonial experience was a shorter frolic and detour than was the case with the British Empire. Hence, Suez, I think, stood for more in terms of Britain tradition than Panama does for United States.

Those would seem to be the major differences, in my view, Mr. Chairman.

Mr. METCALFE. Do you wish to speak to that,Mr. Geyelin?

Mr. GEYELIN. No. I would agree with Mr. Rogers. There is just one point which I think should be made here. One of the big questions which has arisen is: are the Panamanians going to be capable of operating the Canal? I think the same question was asked about the Egyptians at the time they took over Suez, and they have done rather satisfactorily. I do believe the Panamanians, who are already running the Canal, in many respects, since they constitute 70 percent of the personnel there, and they have already proven that they can operate satisfactorily.

Mr. METCALFE. Ms. Prewett, do you wish to comment?

Ms. PREWETT. Yes. First, I would like to ask your permission to insert the magazine article that I mentioned in my statement in the record.

Mr. METCALFE. Thank you.

Ms. PREWETT. It's a short article.

Mr. METCALFE. I ask unanimous consent that the article be included in the record. Hearing no objection, the article will be inserted in the record.

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Thank you. [The article was previously entered.]

Ms. PREWETT. I think one of the problems in doing very clear thinking on a very important situation that we face over the Panama Canal, one of the problems is that the issue has been buried under a sand dune of details that could pile up almost forever.

In general I don't trust oversimplication, but one perhaps useful simplification, although it may not stand up if you get down to every detail on the comparative experience of Europe with the Suez Canal and the United States with the Panama Canal, is that many people see that that was not really a successful move to give that Canal to Egypt.

There has been trouble over it, and as we know, transit there was forbidden to Israel, and if Panama gets control of the Panama Canal, total control of it, say in the year 2000, Latin America may be polarized in many fashions. It's heavily polarized now, and it may be polarized later, and we may find exactly that situation happening.

For instance, we might have, instead of a left-wing Torrijos, we might have somebody to the right. Instead of having a rightist military group in Chile, which depends heavily on the Canal, we might have another leftist regime there, and if the United States is levying penalties for human rights violations, what guarantee, or how can we expect that Panama at some time might not do the same for some of its neighbors?

So, I think giving it to Panama on the terms we propose, or the terms as I understand the Kissinger Treaty, this should not be done. There perhaps should be made some new adjustments with Panama, but this treaty, it seems to me would just cause the Canal to be an apple of discord in Latin America.

Mr. METCALFE. Thank you.

Mr. Ferguson?

Mr. FERGUSON. I would just add in response to your question on the Suez relationship that there the Canal was in the middle of a flaming dispute of quite a number of years between the Arabs and Israelis, a very, very touchy situation, and also that it would be interesting to speculate whether the British and the French would have been able to hold onto the Canal even if they had so wished to do.

Mr. METCALFE. Thank you.

I might ask the panel if they could be a little more succinct in their statements because of the time restraint we are under.

My next question is as follows: several members of the panel have stressed the possibility of disruption of U. S. foreign trade with Latin America, and the slowing of Latin American economic development if the Panama Canal were closed.

My question is, would the panel clarify for us the nature and the magnitude of U.S. trade relations with Latin America, and the economic consequences for the United States of disruption of trade and the slowing of Latin American economic development?

Mr. Geyelin, would you like to start off?

Mr. GEYELIN. I believe, sir, that there is nothing that is permanent in the world. The question is, how long is the Canal going to be

an economically viable institution under any circumstances. Even the Panamanian Government is contemplating in its long range planning the use of a land bridge across the isthmus. There are other land bridges currently in use, and other ones are being proposed, in Mexico and Nicaragua and Guatemala.

I can point out that already, even under the last U.S. increase in tariffs for the Canal transit, one container shipping company has found that it cannot send its ships of over 32,000 tons through the Canal cheaper than they can transport containers across the country by railroad. So already you are getting to that cost benefit ratio break-off point. So it's almost impossible to give a figure as to how much disruption would occur. There is always another way of doing it, such as slurrying ore and pumping it through a pipeline, just like oil. It might be cheaper than transitting ore ships through the Canal. Certainly the oil lines are economically very feasible right now, and even Panama is contemplating putting one in on its own. So, it's awfully difficult to weigh the costs of disruption that a closing of the Canal could effect, unless you said if at this particular moment a bomb were dropped on the Canal and it was closed, how would it disrupt commerce. That could be—I am sure it would be taken care of—but it would be expensive. That does not say that five years from now it wouldn't be the natural course to go other routes.

Mr. METCALFE. Mr. Ferguson, economically, how important is Latin America to the United States and how many U. S. jobs or corporate profits would be affected by it?

Mr. FERGUSON. Well, Latin America is obviously a place where the United States has considerable investments, and I think, in spite of certain nationalist resentments, that these investments will very likely continue to grow.

Are you speaking specifically of the Canal's importance here or—

—

Mr. METCALFE. The Canal's importance, yes.

Mr. FERGUSON. My statistics accord with those presented by Mr. Rogers, that eight countries plus Panama ship a substantially higher percentage of their ocean cargo through the Canal than the United States. I think our figure is somewhere in the neighborhood of 17 percent, and there are other major users of the Canal as well. So I would say that a good number of nations have a greater stake and certainly at least as great a stake in keeping the Canal open to commerce under reasonable tolls as we do.

Mr. METCALFE Thank you. I have one more question for the panel.

If you think that peace is in our vital interest in Latin America, and if you think that a failure to conclude a treaty with Panama would lead to less than a peaceful situation in Latin America, then does it not follow that those who want peace in Latin America should also support a new treaty with Panama?

Would you like to take that, Mr. Ferguson?

Ms. Prewett?

Ms. PREWETT. There is a distinct possibility that over the long term, giving such a tremendous and valuable international asset to a small and weak country, will break up the peace in Panama, and

if we have to intervene to re-establish the stability there, that would have a very bad effect in Latin America, something we are trying to avoid.

In the beginning, if we see the Canal used with the United States in a complaint/threat situation by Panama, there is no guarantee they won't use it that way in the future, and that that will cause a great deal of trouble in Latin America among the Latin Americans.

Mr. METCALFE. Thank you.

Is there any other member who wishes to comment on that?

Mr. Rogers?

Mr. ROGERS. Mr. Chairman, I would like to support the purport of your question.

In my judgment those who are interested in maintaining peace and peaceful relations within the hemisphere ought to be in favor of a modernized treaty relationship between the United States and Panama. Latin America has been the most conflict-free region of the world historically. We have been very fortunate. There have been very few wars which have touched this hemisphere. The Panama Canal is by all odds the one point of in this hemisphere most likely to produce violence in the near term future.

Clearly, in my judgment, a modernized treaty relationship is a contribution to peace.

Mr. METCALFE. Thank you.

At this point I am going to withhold any further questions of individual members and recognize the Members of the subcommittee for any questions they may wish to ask of the panel.

I recognize the distinguished gentleman from Mississippi, Mr. Bowen.

Mr. BOWEN. Thank you, Mr. Chairman.

Mr. Secretary, I noted you have an impressive list in your testimony of the nations' use of the Canal, and I have found in talking with a number of people from Latin nations, as well as those from the Far East and Europe. You refer to who does have heavy dependence on the Canal, much more so than we have, and I have detected there some degree of apprehension about the future of the Canal under a new regime and new administration.

In fact, their concern is in part based upon some of the economic difficulties that we see in the Republic of Panama. I don't think you have to go very far to find out that they are suffering severely internally. Their credit rating is slipping and, of course, bankruptcy is arising, and their national debt, as we all know, is massive. Service on their national debt is one of the largest in the world. There is a feeling, an apprehension, as I say, that the Republic of Panama might want to, if I might use the term, "milk" the Panama Canal for as much as it could to try to assauge the rising demands of the people of Panama, and might try to raise the rates up to such a level that it would be very damaging to those nations using the Canal, and might not make the kind of capital investments that are needed to maintain its effectiveness over the long run, and therefore, the very argument you have presented for a new treaty might be used to support the opposite position, that those are the very people who would suffer if these adverse consequences grew out of the new relationship that might be established there.

I wonder if you might comment on that

Mr. ROGERS. Yes. I think there are several things to be said about that, Congressman. It's a good point and you are absolutely right. The other nations which do rely on the Canal are concerned about what the significance of what Panama's accession to responsibility for operation of the Canal would mean for them.

Several points.

One, there is a distinct limit, as a matter of economics, separate and apart from good will, to the extent to which Panama or anybody can raise tolls. Those limits are inherent in the elasticity of the transportation market. As we know, enormous trade movements which could use the Canal, do not use it, in part because large portions of those trade movements now find it more economical to go around the Horn or across the land bridge. Hence, these elasticity limits will impose a distinct ceiling on the extent to which Panama can raise the tolls. In fact, I am not certain that Panama really realizes the extent to which those tolls will be held down by mere economics.

Second, there are some users I think who would like to see massive capital investments made in the Canal to improve it. There are a number of possible improvements. I have sat on the Canal Board and considered a number of improvements which should be made to make the Canal more efficient. The problem, however, is money. There are some foreign users who clearly would like the United States to hold on to the Canal in order to hold the United States taxpayer responsible for a large chunk of new capital investments which ought to be made in that Canal.

The U. S. taxpayer has not contributed to the improvement of that Canal or its maintenance ever since it was opened in 1960. The cost of improvements has been entirely borne by the tolls. We are now coming to the point where new improvements may be made, and I do think there are some foreign users who would like to see the U. S. taxpayer make them.

I think the third point, for the foreign users, is the question you touch on of whether after the termination of a treaty, say in the year 2000, the Panamaniams will run it efficiently. The Panamanians, the United States and the entirety of world commerce have no little interest in ensuring the Canal is run at maximum efficiency after the termination of the treaty and the partnership during the transition period, and I think economics will impel the Panamanians to run the Canal efficiently.

After all, the Canal is their most vital resource; it is therefore in their interest to maximize transits and to minimize tolls. So, I think there are going to be heavy pressures on Panama, just as there have been on our Canal Company in the past, to maintain it and operate it as efficiently as possible.

Mr. BOWEN. Of course, you point out a concern to all Americans. You said you are not sure Panama itself recognizes the elasticities and economic limits involved, and that is what concerns a lot of people, that the apprehension may be the Panamanians themselves fail to realize adequately their own national interest involved in the sound management of the Canal.

Obviously, a regime under substantial pressure internally as that is, might feel it necessary to resort to actions to, as I say, assuage the mass pressures that might be generated there, and might make mistakes. That is why I indicated a lot of the Latins I talked to indicated that in private they were not very enthusiastic about a new treaty, although publicly they felt their governments had to say they were. This is something that concerns a lot of Americans, I think, and I don't know whether you or Mr. Geyelin might want to comment further to the general point of view as to private sentiment as opposed to the public posture of Latin nations in terms of our relationships with them.

Mr. ROGERS I think it's a fair point. There are a number of Latin Americans, particularly businessmen, who would prefer to see the U.S. continue to manage it and to take the risks and be exposed to the capital investment that will be required.

I would also add this, Congressman, that in terms of Panama you must distinguish between those who would be responsible for technical management and the political atmosphere.

There are, as I hope this panel is aware, a number of highly skilled, responsible technicians and economists within the Panamanian Government. The Minister of Finance, in particular, who is Minister Barletta, is one of the truly significant finance ministers in the hemisphere. Those people do understand both the economic realities that will inure when they acquire partial responsibility for the Canal and the limits imposed by the economics of the world shipping market on the tolls.

Mr. GEYELIN. As a matter of fact, just to underline what Mr. Rogers said, I had dinner with Nicki Barletta, I guess about fifteen months ago, and we were talking until two o'clock in the morning on this subject. He is but thoroughly aware of the limitations on tolls, of the maximizing of the efficiency of the Canal, and he maintained, at that time, that his government which is the government in power now, is thoroughly aware of these limitations.

Mr. BOWEN. I detected on my last visit an inclination on the part of the government to lead the population to believe that once the Canal was theirs, it would be the solution to the economic problems of Panama. Somehow they would be able to derive enough revenues additionally from the Canal Zone to really solve their problems.

That is a very short-sighted kind of analysis, I am afraid.

Mr. GEYELIN. I think that, at least in my discussion with them, the five-year plan that they have for the expansion of Panama City and of Colon into territory now occupied by the United States, would generate enough income to solve some of their balance of payments problems. The real estate values will go up, the business will come in, industry would use it, and all of a sudden you create a whole new wealth producing land mass which hasn't existed before.

Mr. BOWEN. We certainly hope that to be the case. I would say again on my last visit I noticed in the free zone in Colon vast open spaces and was told by businessmen that the charges for the use of that zone had risen to such a point that it was certainly not being utilized to the degree that many Panamaniians had hoped. That is only an illustration of the problem I see of trying to raise charges to such a point that you are really acting contrary to your own

interest. I hope certainly that the wise men of Panama, such as the Finance Minister and others, might perceive this problem.

Ms. PREWETT. As a footnote, I would just ike to call attention to the fact that Mr. Barletta has enjoyed just about the top power that a man of his type can enjoy in Panama for quite some time, and yet Panama is notably in an economic mess.

Mr. BOWEN. I would like to defer at this point to the Minority Member who is present with us, Mr. Dornan, and I have a few other questions to ask later.

Mr. DORNAN. Thank you, Mr. Bowen.

Gentlemen and lady, my district in Southern California, is a very sophisticated district, with a high average education level. Only in one district in the Western United States does the populace have a higher average education. The Panama Canal was the number one issue during my district last year in the campaign. As far as I can tell from my mail, it is still considered a very vital issue by my highly educated constituents.

It's very frustrating to receive your testimony within the time limitations that have been imposed. We really don't get to hammer out some of the issues involved in detail. The same is the case in other public forums. The time constraints of the evening news is even more limited than our time. They deal in very simplistic answers to very complex problems.

We could spend two or three days discussing not only Mr. Baretta's discussions with you, sir, about the raising of tolls. And if we had more time I could tell you about a conversation I had with former Foreign Minister Fernando Elatat and his thoughts on what the traffic can bear using the profit maximizing fares on the freeways. What the traffic can bear, he said, is a ten-fold increase in the tolls. All one has to do is to establish tolls at 75 to 85 percent of the cost of the alternative route. In the example of the freeway, the alternatives would be side streets and increased distances, and in the case of the Panama Canal, the alternative is the trip around Cape Horn. He said you can see what we could really do with these tolls if we wanted to maximize profits.

I think Mr. Bowen's point is very well taken. Panama is in a disastrous economic situation, and sometimes attains 40 percent inflation. The false impression has been given to the Panamanian people that getting this Canal is going to solve all their economic and social ills.

I would like to make one comment on the Suez situation. Egypt, with the civilization going back much further than anything in Western Europe, back four millennia, has a population base of 40 million people from which to draw technicians for a sea level canal, compared to a population base of 1.7 million in the nation of Panama. It's racist, I believe, to suggest that Panamanians individually can't handle any job in the Canal from pilot to the most complex lock operation position. But, I don't believe it's an ethnic charge to say, given the small labor pool base, that they are going to be forced to bring in foreign technicians to run this Canal. If Panama continues to drift into a more unstable economic situation and people who are interested only in power, are secured as dictatorial heads of state there, then we will most probably see

established the same sort of egomaniac we see in Cuba. We will watch Panama have a flirtation with Communist countries, and we will see Soviet and Cuban technicians coming in and replacing ours on the Canal.

Given your statement, Mr. Ferguson. If Britain had maintained control of Suez, it would have been open for an additional decade. But the analyses are not only difficult as you said, Mr. Rogers, maybe they don't apply at all, given the whole different times in history.

I would like to ask a question, Mr. Ferguson.

On one of your lines in the closing part of your statement you said: "Intransigence on Panama will not be regarded by the international community as a sign of strength but as a bravado of a bully, masking basic insecurities, and as ultimately foolhardy in the extreme because we would be bucking nothing less than the anti-colonial tide of modern history."

I do not mean to inject here a note of "and so's your old man," but when is this international dialogue applied against Communist terrorism and imperialism around the world? The ugly science of death that some phonies call "peace" in Southeast Asia has met with a stony wall of silence from previously bleeding hearts in this country. It seems that the bleeding stops where it comes to Southeast Asia and the genocide in Cambodia, slaughter now going on in Laos, and the stupid and ugly euphemism of "re-education centers," which are nothing more than concentration camps.

We find the religious community is silent; we find academia silent. I don't know what is going on at Rutgers. Maybe there are some symposiums on what is happening to Southeast Asia. Nor do I see pride for the three exile governments we have in this country, Lithuania, Latvia, and Estonia.

The United States does not indulge in bravado, the Soviet Union does. So does Cuba. Castro sent 3,000 Cubans to Ethiopia this month. Cuban lads are running all over Africa slaughtering black lads. It's really silly to talk about bravado, because it seems we are moving into a new phase of world power that has the stench of 1938 and 1939 about it. If you are looking for bullies, then look at people who brag about drinking the bad blood of those who attempt to assassinate them, as Mr. Idi Amin. You will see as ugly a terrorist as ever hit the world scene, although a pip-squeak. If you are looking for bullies, look there. Not in the U.S.

Amin gets a standing ovation at a meeting of the community on African Unity. There were only a few gestures or stirrings of disapproval in the background.

I think the United States better stand taller and accept some vibrations from the hinterlands, from your average American citizens, about what they consider vital rights in this area of Panama. They don't consider it bullying.

It is a hot, hot, political issue, and your scenario about violence in the area, Mr. Ferguson, may take place. But it will take place if we continue to kowtow to a dictator whose brother has been run out of several countries, including the United States, for heroin pushing. The heroin pusher is rewarded by his dictator/brother with an ambassador's job to Spain. If we continue to watch this strong arm

dictator down there giving his people the impression their economy will be rescued by a Canal treaty that is a one-sided treaty, not a partnership treaty, and if we continue to delude the Panamanian people into thinking that everything is going to be resolved around the negotiating table and not on Capitol Hill, if the Panamanian people are not aware of what is going to happen in Washington, D.C., then of course rioting will ensue.

I would like each of you to comment in turn on a statement of the Chairman of the Merchant Marine and Fisheries Committee submitted in the record on October 30 of 1975, and I will insert this whole thing in the record, but I would like to read for emphasis one particular series of paragraphs.

This is Mr. Murphy speaking, John Murphy of New York:

"Communist ties with Panama are not a recent innovation, nor are they unknown to our negotiators. In the State Department Bulletin, the official record of U.S. foreign policy dated February 24 1964, just after violent anti-American riots which led to a four-month break in diplomatic relations with Panama, we read:

"If an investigation is made...it will show that violent mobs, infiltrated and led by extremists including persons trained in Communist countries for political action of the kind that took place, assaulted the Zone on a wide perimeter, setting fire to buildings inside the Zone and attacking with incendiary bombs...It will show that the Government of Panama, instead of attempting to restore order, was, through a controlled press, television and radio, inciting the people to attack and to violence.'

"The speaker was the U.S. representative to the Council of the Organization of American States, Ellsworth Bunker, our current Panama Canal Treaty negotiator.

"Later Joseph Califano, counsel for the United States at the OAS hearings, outlined some of the findings: 'We know that some of the leaders in the rioting were known and identifiable Communists, members of the PDP, the Communist Party of Panama, the people who belonged to the Vanguard of National Action, which is openly and proudly the Castro Community Party in Panama.' "

[The above referred to article follows:]

THE CUBANIZATION OF PANAMA

HON. JOHN M. MURPHY

OF NEW YORK

IN THE HOUSE OF REPRESENTATIVES

Thursday, October 30, 1975

Mr. MURPHY of New York. Mr. Speaker, the most recent exchange of rhetoric over the current negotiations on a new Panama Canal Treaty is a frightening example of how tunnel vision can produce an ignorance of the true facts which would irreparably weaken the economy and security of the United States. Proponents of a treaty revision view the existing treaty as an offense to Panama's sense of nationhood, and insist that the United States relinquish all control and jurisdiction over the Canal Zone. This is just as ridiculous as asking for our $24 back and returning Manhattan to the Algonquins.

The United States to date has invested nearly $7 billion in the construction, administration and defense of the Panama Canal. The canal has become known as the "jugular vein of hemispheric defense," and has served throughout its history as a major artery for the flow of strategic and economic lifeblood between the two oceans and the two coasts of America. Yet the treaty revisionists would have us give up all this to a government which is ever more rapidly slipping into a Cubanization/communization program under the guidance of an unstable dictator.

Communist ties with Panama are not a recent innovation, nor are they unknown to our negotiators. In the State Department Bulletin, the official record of U.S. foreign policy, dated February 24, 1964—just after violent anti-American riots which led to a 4-month break in diplomatic relations with Panama—we read:

Then investigation is made . . . it will show that violent mobs, infiltrated and led by extremists, including persons trained in Communist countries for political action of the kind that took place, assaulted the zone on a wide perimeter, setting fire to buildings inside the zone and attacking with incendiary bombs . . . It will show that the Government of Panama, instead of attempting to restore order, was, through a controlled press, television and radio, inciting the people to attack and to violence.

The speaker was the U.S. representative to the Council of the Organization of American States, Ellsworth Bunker—our current Panama Canal Treaty negotiator.

Later, Joseph Califano, counsel for the United States at the OAS hearings, outlined some of the findings

We know that some of the leaders in the rioting were known and identifiable Communists—members of the P.S.P., the Communist Party of Panama—and people who belonged to the Vanguard of National Action, which is openly and proudly the Castro Communist Party in Panama.

There is absolutely no question as to the increasing ties between the current military dictatorship of Gen. Omar Torrijos in Panama and the Castro regime. The commercial air route between Havana and Panama City is traveled constantly by the likes of foreign ministry Fabian Valerde. In his June meeting with Castro, his vice minister Carlos Rodriguez, known as the "Moscow man in Havana," and Commandante Manuel Pinetro, the chief of intelligence responsible for guerrilla activities abroad, Valerde spoke at length about Cuban-Panamanian relations and about anti-U.S. tactics in connection with the future of the canal. When this was reported in the Panamanian Government's official organ, El Matutino, Valerde praised Castro for his "wisdom" in the Panama Canal case.

Valerde said Castro offered Communist Cuba's most emphatic support on the canal question. At the same time, another Panamanian group headed by Carlos Lopez Nuner, the militant head of the National Committee for Panama's Defense, was in Hanoi to discuss the canal question with the Vietnamese Communists.

Later, in a July interview with the "Mexico City excelsior" General Torrijos expressed the belief that the return of the Canal Zone to Panama, and the removal of the U.S. military bases, was imminent. In response to the question, "what if that does not occur?", Torrijos said:

Then we would have to walk the Ho Chi Minh Trail. The Ho Chi Minh Trail is long and it exerts a heavy toll in blood.

How many more positive indications must we accumulate before we see the course of the Panamanian dictator? Does it arouse anyone's curiosity that one of Valerde's delegation to Cuba was Romulo Bethancourt, one of the treaty negotiators? Does nobody notice that Panama has been accepted as a full member to the nonaligned nations conference of 82 countries, mostly anti-United States? Does the Cuban Information Office in Panama City, Torrijos upcoming visit to Havana, and the mutual admiration society between Torrijos and Portugal's Communist military regime, mean anything at all? What about the allegations that the Rio Hato military base near the Canal Zone is a training ground for guerrillas? And what about the fact that in 1968, when Torrijos came to power, he allowed the Communists to remain in the country as the only legal political party?

I would like to make one more point about the Panamanian Government. This is the 59th administration since the canal opened just 70 years ago. This averages out to about 1.2 years per administration. The fact that General Torrijos has headed the Panamanian Government for almost 8 years, following his military coup in 1968, only underlines my basic point—that his iron rule by dictatorial fiat is increasing the solidity of the Communist influence in the Caribbean.

The Panama Canal is of major importance to the national defense and security posture of the United States, as well as to the economic and commercial interests. During both World Wars, as well as Korea and Vietnam, the canal provided the United States with indispensable services in the movement of ships and supplies between the Atlantic and Pacific Oceans. The canal saves about 8,000 miles and 20 days of travel, with approximately 70 percent of its traffic either originating or terminating at U.S. ports.

With control of the canal, Torrijos would have a number of fascinating options: First, he could increase tolls to American shipping, adding to transportation costs and to the resulting costs of American goods; second, close down the canal at his whim, doubling the costs of fuel and doubling the travel time from coast to coast; and third, maintain complete control of deployment of U.S. naval forces, and their access to both oceans with what is essentially a one-ocean Navy. We are spared the need to develop separate navies in each ocean to meet crisis in both sides of the world only because of our control of the Panama Canal.

I would also point out that we do not rent the canal, as is so often mistakenly stated in the press. We have paid for the Canal Zone, not once, but twice: First, a $10 million lump sum to the government, and then again by purchasing each individual tract from its owners. It is the most expensive land purchase the United States has ever made.

Panama is still paid an annuity of $2.3 million per year. This is nothing more than the continued obligation paid to Colombia before 1903 for the loss of the old Panama railroad. This began as $250,000 per year, and none of the subsequent increases were required by treaty. In addition, Panama is given more U.S. aid per capita than any other country in the world. To imply that the Canal Zone is not U.S. territory is ridiculous. The canal is the lifeline of the world. To agree to give up all rights and influence, to allow a Communist dictatorship to dominate our defenses and our entire economy, is, to me, the height of insanity.

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Mr. DORNAN. Let me start with the first witness today, Mr. Rogers.

Would you please comment as briefly as you can on what your impressions are about the stability of this government with its token president, Mr. Lakas and this General Torrijos, and whether or not the United States is really able to reach any type of partnership arrangement with the Panamanian people, as long as they have a strong arm, one-man dictatorship form of governent?

Mr. ROGERS. Yes. It has been the most stable government that Panama has had for a number of years, Congressman. In addition, I think it's probably fair to say that the political situation in Panama, as in most Latin American countries, is a turbulent one. There is a wide spectrum of political opinions. The tenor of debate, the absence of demagoguery is not as clearly marked as it is in our own domestic discussion. But——

Mr. DORNAN. Excuse me, sir, is there any debate at all with the controlled press and radio, and one party system and 7,000 Guardia National virtually guarding the country? The Guardia recruits orphans young people from the farmland country, very rural, uneducated people who can't read. Isn't the Guardia really just a personal group for the dictator, a shock group learning karate for Mr. Torrijos? When you talk about stability do you mean like Mussolini brought to Italy with the trains running o time, or Hitler claimed he brought to Germany with the Nazis and SS?

Of course, there is stablity in the government when there is an iron rule.

Mr. ROGERS. The best sort of information, Congressman, with respect to the situation in Panama is the Church. Archbishop McGrath, as you know has been, for example, one of the significant spokesmen for both the desirability of concluding a new treaty and for the propriety of entering into a treaty with Panama as a nation at the present time.

I take it from him and from other sources that this has been a government which has survived and has succeeded in managing the country for a considerable number of years now, much longer than its predecessors.

Mr. DORNAN. But it is a one-man government.

Mr. ROGERS No, it's not a one-man governent. In fact, it's not even nearly as institutionally controlled by the military as many other governments in Latin America are, Panama is a government which has a considerable civilian input. A number of the main ministries are civilian. The Ministry of Foreign Relations is civilian. The negotiators for the treaty have been civilians. It has a much wider, if you will, institutional structure than the National Guardia itself. All these things I think are hallmarks of an openness which in some respects allows Panama to be compared favorably with other nations in Latin America.

Mr. BOWEN. Would the gentleman from California yield?

Mr. DORNAN. Yes.

Mr. BOWEN. It's quite possible I suppose that the Cuban presence in Panama has been overrated. There are those who say that is the case, that there are really no Cuban threats there.

Now, you are, of course, an experienced diplomat, and you have had the responsibility of overseeing the operation of embassies, and you know what is involved, with regards to the needs for an embassy or counsellor service of a given size. I am told the Cubans have the second largest embassy in Panama City next to that of the United States.

Would you say that the nature of the economic and political relationship with Cuba is such that it would justify an embassy of that size and that kind of personnel in Panama City?

Mr. ROGERS. Mr. Bowen, you said I was a diplomat. There are some, not including myself, who would regard that as a form of high praise. I am a lawyer, not a diplomat, as a number of my former colleagues in the State Department would at a moment's notice tell you.

The question about the number of Cubans who are in the embassy down there has been an issue that has been thrown out in the debate year after year after year. I have always felt that diplomatic services in general were vastly overstaffed. The Cubans aren't the only ones. Ours is vastly overstaffed. I might tell you that the extent to which we have fluffed up our embassies abroad with agricultural attaches, Treasury attaches and meteorological attaches and a variety of others was a source of constant consternation to me when I was in the Department and responsible for managing our ambassadorial systems abroad. Such over staffing is very difficult to cut down.

With respect to the number of Cubans down there, I can't really tell you. I don't know how many they have. I don't know, in fact, what they are doing. I can say that we had every evidence during the time when I was Assistant Secretary in Latin America that however many Cuban diplomats may have been resident in Panama City, they were not wildly successful in maintaining calm and cool relations with the Panamanians. We had substantial evidence that that relationship between the Cubans there and the Panamanians fluctuated quite wildly in terms of warmth and coolness from time to time.

In other words, numbers are not necessarily the equivalent of success in the diplomatic game. So, I must say, I would not tend to read a very great deal of significance into the precise complement, of the Cuban Embassy.

I have no doubt, Mr. Bowen, if I could add one further note, that for those who do not wish us well, Panama is an obviously critical point. For those who do not wish us well, nothing would be a more welcome piece of news than to have our relations with Panama over the treaty issue fall apart. It would be a gift to those who do not wish us well of incalculable proportions, not only in terms of our relations with Panama but much more importantly throughout Latin America and the developing world.

Mr. BOWEN. It is only my observation, but I believe personally the Panamanians have miscalculated in terms of establishing the kind of ties that they have with Castro, with Quaddafi and others who are not particularly popular in the United States.

I think, they have calculated that the kind of relationship they have established there would help frighten us into establishing a

treaty, but if it is done within the State Department, the effect inside of the United States with the American public has been just the contrary; it has built up stiffer resistance to the acceptance and ratification of a treaty. I found that wherever I have gone in the country, and I am sure my colleagues on this panel would agree, that there has been a severe miscalculation on the part of the Republic of Panama, that has built up heavy opposition. In fact, most of the mail I get on the subject, and I know many of my colleagues have told me the same thing, is based up on a fear, whether accurately founded or not, that Castro or some Communist power outside will take over, and of course, the government in Panama has actively developed the close, warm relationship with Cuba that they have, I presume, for the reasons outlined.

Mr. ROGERS. I don't overstate the warmth of that relationship, Mr. Bowen. I think I have talked to some Panamanians. For example, Panama took a planeload of businessmen and others to Cuba after they had re-established relationships, and I represent to you that I have been advised by a number of people that reaction, once they got to Cuba, was devastating. They were delighted to be back in Panama. Now, part of the reason for that was, I think, that Panamanians do not adapt well to the kind of extraordinary discipline which Castro attempts to impose on Havana.

Panamanians are by nature a fairly relaxed, spontaneous people, and they did not come away from Cuba with a wildly romantic sense of the virtues of Communism.

By the same token, of course, the official position Torrijos' administration has been not Marxist. It has not adopted a Marxist philosophy, or a policy of public management or ownership of the Panamanian economy. Whatever else you may say about it, it is not a Marxist, Socialist state at the present time.

Mr. BOWEN. Let me ask one final question, and I will be through and yield back.

I find there is a sharp line that distinguishes the thinking inside the State Department and other circles of our Government from what goes on out in the country in general. One of the reasons I directed some of these questions is to point out to you why it is that the American public is responding in the way it is, and why we are receiving these communications. I have talked to my good friends in the State Department and they would say, what is wrong out there, how come you guys don't see the light? How come you are not good guys like we are, and are not jumping up and down and calling for a treaty?

I would like to say this, too, as a point of criticism of the public relations policies of our Government for some years, including this present Administration too. Nobody really in the Administration, the State Department, really I suppose the responsibility lies in the White House rather than the State Department, has done very much to try to educate the American public on this subject. The wheels have been grinding along, the treaty negotiations have been rolling along, but yet we have a USIA to try to explain our position to the world, but we don't have a domestic USIA, unfortunately, to try to explain what is going on to the American people.

I am happy Mr. Geyelin's organization is involved in some communication along these lines, but I would say the general American public has had very little in the way of argument by anybody's administration to explain to them what is going on, and what the issues are. Instead, our Government, has defaulted to the newspaper editors, and the propagandists of one side or another around the country on the subject. That is why our Government faces such a problem right now in getting any kind of acceptance of any kind of treaty.

Mr. ROGERS. I would like to comment on that, Mr. Bowen.

I think you are absolutely right. I thought so when I held a position of responsibility. I now have a position, I suppose, of irresponsibility. In all events, there is no question but that the United States Government under both Administrations has been deficient in explaining to the American people in a non-demagogic way, the issues with respect to Panama.

Now, it was a matter of dispute throughout my term as Assistant Secretary that we ought to be doing more education. The argument against this was that it was premature, prior to the time when the negotiations culminated in a treaty, to attempt to go out and discuss the issues involved in those treaty negotiations with the American people. For better or worse, that is where we came out. That was where the Administration settled, deciding not to debate the details of the treaty until the final negotiations were completed. But that has left us behind the curve, and you are absolutely right in saying over and over again, this is, as Congressman Dornan has said, that this is a matter of profound concern to your local constituents and to the American people in general.

The issue must be explained to them. It must be a matter of careful, objective discussion, throughout all fora of Government, and throughout the political parties in our Nation between now and the time that treaty commends itself, if it does, to the House and Senate of the United States.

Mr. DORNAN. Mr. Rogers, if I could expand on your statement one bit. After this discussion takes place, I don't think there will be any want for more discussion on this issue on the House Floor if and when the transfer of U.S. property is considered. I don't think there will be any want of discussion on the Senate side about the treaty given there are much broader rules of debate and discourse. Even after every nook and cranny of the intellectual discussion has been probed, you may still find enough of those one-hundred eloquent gentlemen on the Senate side voting against a new treaty, and you may find the same thing on the House side in regards to the property transfer.

The reason I want to see the debate take place the way you have described it, in every fora of America, is to remove some of the simplistic points that this is not American territory as simply as is Alaska or Louisiana, the mistaken statement often made.

On the other side, this flagellistic exercise that we have brutalized Panama, crushed their economy and held them down would be laughable if it were not so vital an issue. I want to see some of that argument taken out of the pro give-away side.

I would like to comment on your remarks on page 15 of your testimony where you say that if the present treaty negotiations were to fail, there is a possibility of violence and bloodshed involv-

ing both United States and Panamanian citizens, that we are discussing an issue here so volatile that young men and innocent women and children may die on the Panamanian side and young men and women and American soldiers may find themselves in yet another peculiar conflict situation.

On page 3 you mention an inventory of those issues that really should deserve our best thinking: control of world armaments, the challenge of global poverty, management and pricing of the world's scarce energy supplies, et cetera.

I think your listing of problems omits one of the greatest problems that perplexes civilization in every epoch of history: man's lust for power. Yes, Panamanians were turned off by Castro's adaptation of Communism to his island, but I think one of the mysteries of this is, irrespective of a 100 percent failure rate of Communism in every economic and human rights situation, Communism still persists in every nation, including our own. They are in the underground and out of the closet. There are Communists sitting in the Knesset in Israel even though Jewish citizens in the Soviet Union have the word "Juden" stamped on their passports. Communism continues, because misdirected leaders say, "in our country we are going to do it differently". In Panama, Torrijos says "we are going to give it a wonderful Panamanian twist". I don't think Torrijos is anything but a corrupt, dictator, capitalized by the appropriately numbered bank accounts in Switzerland.

Yesterday, when I asked some experts from Panama off the record about rumors of his activities in houses of prostitution and womanizing and heavy drinking, the three or four people I asked laughed and said, "What do you mean rumors? It's common knowledge." Newsweek laughs at him running from bed and being in a different bed every night; it's not running from assassination attempts, it's other reasons.

These statements of mine will probably preclude my ability as a United States Congressman probably to fly into the Panama City airport. I will have to go in on future trips to Howard Air Force Base.

Now, here we have a situation of a man much like Castro who has a lust for power, looking at where his future is going, whether he is going to hold power for three or four decades, who is an opportunist open to the power of Communism for what it can do for him personally.

If Mr. Torrijos was living up to the 1936 Treaty Article X, there would not be a danger of threats of violence, he would be in a position, as our partner in this Canal situation, to be the very one to control stability and put down riots.

Let me read at this point Article X, it's very brief. It's from 1936, March 2 1936: "In case of an international conflagration or the existence of any threat of aggression which would endanger the security of the Republic of Panama or the neutrality or security of the Panama Canal, the Governments of the United States of America and the Republic of Panama will take such measures of prevention and defense as they may consider necessary for the protection of their common interests. Any measures, in safeguarding such interests, which it shall appear essential to one Government to

take, and which may affect the territory under the jurisdiction of the other Government, will be the subject of consultation between the two Governments."

I would like you to comment on General Torrijos' attitude toward threats of instability and toward one of the leaders of his government, Tony Noriega, the number three, four or five man being involved in bombs being set in the Canal Zone, our Canal Zone in October of this year. Do you think Torrijos' control of his government could possibly have been ignorant of the Noriega involvement in that bombing in the Canal in October?

Mr. METCALFE. Would the gentleman yield?

Before you answer that question, Mr. Rogers, I would like to make a statement.

The Chair has attempted to conduct these hearings in a very democratic and a very fair manner. If you will note, I have not invoked the five minute rule. We have abused that rule excessively, all of us, and I think in order to keep things in continuity that we have to establish that point. You will recall I refrained from asking any individual member of the panel any questions and I have a whole series of questions to ask in order, to give recognition to the two distinguished members who are present with us today.

I would hope that we would stay with the panel, and now that it's almost twelve-thirty, that we will set an adjournment time of one o'clock for these hearings. Otherwise, we can be here until midnight, espousing our own philosophies, which I don't think should usurp some of the cogent questions that we have.

I am now at this particular point going to ask unanimous consent that at one o'clock when we will adjourn these hearings, that the record remain open for us to ask each member of the panel the questions that we had originally intended to ask, so we can get these questions in.

I know this is an emotional question. We anticipated it when we arranged these meetings and scheduled all of the distinguished panelists to participate in them, but certainly we want to achieve our objective, because there are many questions and there are many shades of opinion, and we are almost getting into the area where we are in a debate, and I would hope that would not prevail in the best interest of these hearings.

So I now yield back my time to the distinguished gentleman from California, Mr. Dornan, for Mr. Rogers to answer his question.

But first let me put the question. In regards to keeping the record open, I ask unanimous consent that the record be kept open, and we be able to submit questions to each member of the panel. Is there any objection?

Hearing no objection, that will be the order.

[The questions and answers may be found at the end of these hearings.]

Mr. METCALFE. Proceed, Mr. Dornan. Mr. Rogers, would you answer Mr. Dornan's question?

Mr. ROGERS. Yes. I don't think I have any useful comment on that question. I am not a witness with any great skills or knowledge about that question.

Mr. DORNAN. Were you aware of Mr. Noriega's involvement in the bombing charge by our industry and military and the Governor's office?

Mr. ROGERS. No. I don't recall I was.

Mr. DORNAN. Were you, sir?

Mr. GEYELIN. No.

Mr. DORNAN. Were you, Mr. Ferguson?

Mr. FERGUSON. No.

Ms. PREWETT. I was.

Mr. DORNAN. Well, I will ask you for a comment, Virginia. Would you think it possible that given the strong arm control of that government that Mr. Torrijos would not be aware of one of his five top officials in his government's involvement in something as serious as bomb setting?

Ms. PREWETT. Absolutely not.

Mr. DORNAN. Do you feel, you were down in the Canal Zone, that there is a sense of partnership between that government, not the Panamanian people, but the current government and our Government that this is a mutually shared approach to the new treaty that is fair to both parties and to world trade?

Ms. PREWETT. Well, we have many confirmed reports of such people as the chief negotiator Romulo Escobar Bethancourt, tongue-lashing our negotiator, Sol Linowitz, and the venerable Ellsworth Bunker in very recent times, and that is one reason why these current talks which are stalled, are being held here.

Very briefly I will just say that Torrijos' public statements in recent interviews in Mexico and in Madrid, published, have been very rough and hostile, and in Madrid he said, in effect, "there are now American firms doing business, a thousand firms doing business in the Canal Zone, and we want them out because we want that business."

There is a hostility, they want the United States out in every sense, period.

Mr. DORNAN. Mr. Ferguson, as a professor who deals with the young Americans in a collegiate situation, have you tried to be a student of power politics and the personality of General Torrijos? What could possibly be a worse situation than our pulling out and leaving the Canal to Torrijos?

Mr. FERGUSON. I believe I deal with that to some extent in the statement, a portion of which I did not read about the ideology of the Panamanian Government. I would certainly not wish personally to defend the present government from a number of standpoints. I think the thrust of my statement and my belief is that the constraints on the Panamanian Government with regard to the Canal and the matters that interest us the most will be there regardless of the ideology of the regime. That would be my assessment.

Mr. DORNAN. How do you account, as a student of Central America, for the disparity in agricultural advancements between Costa Rica, which has no National Guardial at all, and wide open election, in the American tradition of conventions and so forth, and the poor development of the Panamanian outlying agricultural areas, given the proximity of the two countries, and the fact we pour far more aid money in Panama than Costa Rica?

Why is there this disparity in agriculture?

Mr. FERGUSON. Part of the explanation is that Costa Rica has a tradition of smaller landholdings, and also the Panamanian Government over the years has not been exceptionally effective. In fact, the Torrijos regime represents the outcome of years of relatively ineffective government.

I believe in the last 30 years or so the Government of Costa Rica has done a substantially better job.

Part of the reason that the Government of Panama has not proceeded to modernize itself and come to grips with its problems has been the fact that so much of Panama's main economy has been under the control of the United States, but I certainly would not wish to attribute to the United States all of Panama's problems.

Mr. DORNAN. Mr. Geyelin, do you feel this sense of partnership betwen the current government of Panama and our Government has been achieved? Is there a two-way street of magnanimity? Nor is the small nation deliberately trying to provoke some kind or sort of the David and Goliath situation for demagogic reasons?

If you could just comment on the partnership.

Mr. GEYELIN. I don't think a partnership exists in this relationship now anymore or less than it did before. You always have the syndrome of the small versus big nation, the defensive attitude. I believe that you have in General Torrijos a consumate politician who would never commit himself. He is going to flow down the river wherever the current takes him, not touching on either shore, and that he will take the demagogic action necessary to ensure his political status. But I don't find that particularly unusual among nation states.

I think that you can find the same actions in any other country in the world. So I don't get the sense of really what you mean by partnership. It's everybody looking out for his own best interests, if you will, his own political perpetuity.

Mr. DORNAN. Well, I must say some of your statements here today had very lofty intent behind them. It wasn't a question of what is necessarily good for American ox but what is fair and what is decent for us to do as a large nation with all of the responsibility that goes with being a large nation. As a businessman, familiar with business interests in Panama, could you tell us what businesses you have been able to find out that Omar Torrijos is involved in, as owner or part owner or someone who gets a percentage of the business?

Mr. GEYELIN. I know of none.

Mr. DORNAN. You mean discounting rumors.

Mr. GEYELIN. I know of none. That doesn't say he doesn't have some. I don't know of any U.S. corporations, that have any direct or indirect holdings by Panamanians in the government, other than through the joint ventures which many U.S. corporations are in with Panamanian businessmen.

Mr. DORNAN. Let me say the fact that I think is missing from all three of your statements, is one that is impacting on the perceptions of the American people in general. It is why the State Department is so confused as to what Mr. Bowen referred to, this lack of understanding, as the State Department perceives it, on the part of

the American people. Ambassador Linowitz told me it's my job as Congressman to go back and educate the people in my district to see things the way he sees them. Not listen to them, mind you, but educate them.

First of all I guess I would have to educate myself, because the growth of the Soviet Navy, the Castro situation and Mr. Torrijos' personality impacts so heavily on this issue that even when we have open debate it may not come down the way the intellectual community at Rutgers sees it.

The main problem here is simply we do not have a head of state that can travel to this country the way we have seen the Italian leader or Egyptian leader here or Menahem Begin here a few weeks ago. He can not appear on Meet the Press, or come before Congressional Committees. He couldn't be sure he'd have a job when he got back. Panama is a nation actually of only 1,700,000 people, and it's a nation that has prospered very well at the largesse of American taxpayers, and their generosity. Maybe not as much as they would like, but more than any other Latin American country, and I think it's just going to be an awfully difficult thing to sell to the American people, even if it is simplistic to say we are giving up the Canal without any quid pro quo.

I appreciate your participation and I have no further questions, Mr. Chairman.

Mr. METCALFE. Thank you very much.

There is the bell and we do have to go and answer and vote on the House Floor. By the time we come back the time limitation of one o'clock will have arrived.

We have already passed by unanimous consent the order that any Member would be privileged to ask in writing any panelist any questions for the record. I would put a time limitation on that order, and I do so now. They will have five days in which to submit their questions to the Majority staff, at which time we will compile these questions and submit it to not only to these members of the panel today but to the panelists from the other days as well.

I regret that because of the magnitude of these hearings that we cannot go on all day and all night, because we do have other commitments to which we must adhere.

I want to express the thanks of the committee to Mr. Rogers and Mr. Geyelin as well as Mr. Ferguson and Ms. Prewett for contribution. Panelists, you will be hearing from us.

The hearings on the Panama Canal Zone will now be adjourned subject to the call of the Chair.

This meeting stands adjourned.

Thank you kindly.

[The following was received for the record:]

TO : GOV. H. R. PARFITT

FROM: RALPH H. METCALFE, CHAIRMAN
PANAMA CANAL SUBCOMMITTEE

SUBJ: QUESTIONS IN CONNECTION WITH VITAL INTEREST HEARINGS HELD JULY 25-27, 1977

Mr. Metcalfe. Much of the testimony prepared for today's hearings stressed the economic value of the Canal in terms of its reliability. What do you perceive as the greatest threats to the Canal's reliability?

Gov. Parfitt. Reliability of service is most dependent on a highly qualified, well-trained and efficient work force, motivated to doing a good job. The Panama Canal Enterprise has such a work force. Erosion of this strength, from whatever causative factors, would be extremely detrimental to the best interests of users. This is the major management problem now in light of the apprehensions and uncertainties surrounding treaty negotiations; and also would be the major concern during a potentially disruptive treaty transition period.

Service to Canal users has always been the primary interest of Canal management. This has been reflected in sound, vigorous preventative maintenance programs; timely capital replacements and additions to plant and equipment; and reasonable tolls. Any changes in these policies would adversely impact on users.

Mr. Metcalfe. Reference Kujawa's statement on inter-related services: From the standpoint of U.S. economic interest, which of the canal enterprise services do you consider most

important and which the least important?

Gov. Parfitt. It is difficult to isolate functions at the Panama Canal and discuss the relative importance of each to the enterprise as a whole from an economic or other perspective.

We view each of the activities conducted by the Company/Government and its associated facilities as being interrelated, interdependent, and as contributory to the effectiveness of the overall operation of the Canal. Any adverse effect on any one of our activities has the potential to diminish the quality of the entire operation to some degree, with cumulative losses eventually resulting in the ineffectiveness of the operation.

Some facilities are so basic as to be considered vital to the operation of the Canal. The anchorages, breakwaters, channels and harbors, the three sets of locks, dams, navigational aids, power stations, tugs, and dredges are examples of vital areas and facilities adequate to handle routine Canal maintenance, repair and maintenance of other supporting facilities, and emergency repairs resulting from marine accidents. The Canal, of course, cannot operate without personnel, and, in order to retain a skilled professional workforce, appropriate facilities must be available to house them in a secure and quality environment and to provide them with sufficient supporting services.

There are some other facilities, such as Summit Gardens, central air conditioning, and some remote navigational aids which cannot be said to be vital to the maintenance of a high level of operating effectiveness. Similarly, there are some parcels of land over which jurisdictional responsibility could be relinquished, such as Shaler Triangle and Fourth of July Avenue on the Pacific side and the France Field parcel on the Atlantic side, with little or no impact on the effectiveness of operations.

In assigning a relative importance to a facility or activity, each of which contributes in its own way, it is necessary not only to consider each on a selective individual basis, but also to note that the cumulative effect of each of these on Canal operations needs also to be weighed.

FROM: ROBERT K. DORNAN

Mr. Dornan. Do the Panamanians have the technical experience and personnel to operate the Canal? If not, where do you think they will find it?

Gov. Parfitt. Although there are Panamanian employees in practically every occupational group in the Canal organization, Panama does not now have the total technical experience and personnel to carry out some of the more specialized functions required to operate the Canal. However, it can acquire such expertise through training programs and internal development or by hiring from external sources.

Mr. Dornan. What is the U.S. citizen-employee attrition rate in the Canal Zone? Has it increased? Do you see any connection between attrition rate and concern on the part of U.S. citizens that their rights would be insecure under the provisions of the proposed treaty?

Gov. Parfitt.

The voluntary resignation rate of full-time permanent U.S. citizen employees of the Company/Government organization is as follows: CY 1973, 5.3%; CY 1974, 6.0%; CY 1975, 4.1%; CY 1976, 8.3%; CY 1977 (thru June), 7.2%. Stated another way, the average number of voluntary resignations in the period 1973 through 1975 was 185 as compared to 290 for Calendar Year 1976 and was 124 for the first 6 months of Calendar Year 1977. Thus, the resignation rate during 1976 was approximately 60% more than the average of the previous 3 calendar years. The rate so far during Calendar Year 1977 is also higher than the 1973-1975 base period.

A number of the resignations that have taken place during the past several years, particularly since February 1974, when Secretary of State Kissinger and Panamanian Foreign Minister Tack signed a Joint Statement of Principles, are caused by uncertainties and apprehensions resulting from treaty negotiations.

Additional resignations have resulted from certain management decisions that have caused U.S. citizen employees to perceive a general whittling away of their benefits. These include a necessary program of austerity measures, and other measures designed to ameliorate conditions which were perceived by our Panamanian employees as discriminatory.

Mr. Dornan. To what extent can the U.S. employee attrition rate continue without our losing control of the Canal operations?

Gov. Parfitt.

Although the voluntary U.S. citizen resignation rate is somewhat higher than we would like it to be, it is not of such magnitude as to cause great concern. We are, however, concerned about its trend. Even more important is the resignation rate among certain of our key employee groups such as ship pilot, nurse, towboat master, and certain of our crafts such as machinist, electrician, and dredge and towboat engineers. So far, the Panama Canal Company/Canal Zone Government has been successful in securing replacements either from the local labor market, or from the United States. We do not foresee in the immediate future, any danger of our losing control of the Canal operations.

Mr. Dornan. Have U.S. employees been given any economic or job guarantees or other promises if the proposed treaty is effected? If so, please supply them to the Committee.

Gov. Parfitt.

Discussions are still being conducted on the issue of employee rights and guarantees, and as far as is known here, there have not yet been any agreed upon guarantees officially announced by the negotiators. In March of this year, however, the Secretary of the Army, with the concurrence of the U. S. negotiators, authorized the release to Canal enterprise employees of a 15-point list of assurances concerning rights, benefits and protections being sought for the Canal workforce. A copy of that paper is herewith submitted for the record.

Mr. Dornan. The Bill of Rights has been incorporated into the Canal Zone Code by the Congress of the United States. Would an American enjoy the same protection and privileges under Panamanian law?

Gov. Parfitt.

The courts have held that the provisions of the bill of rights incorporated in the Canal Zone Code are to be given the same construction as that accorded the equivalent provisions of the United States Constitution. Accordingly, all persons in the Canal Zone (including non-U.S. citizens) are entitled to enjoy rights and protections deeply rooted in English common law — from which tradition the language of the bill of rights derives much of its specificity and therefore its force.

The U.S. Bill of Rights clearly would have no force in Panamanian territory. The Panamanian Constitution of 1972 contains a lengthy statement of "fundamental guarantees" (copy attached) which may be compared on specific points with the U.S. Bill of Rights. To the extent there is similar language, of course, there would not necessarily be similar treatment of a specific case, due to significant differences between Spanish (civil law) and English (common law) legal concepts, as well as the mechanisms available for challenging apparent rights violations.

Mr. Dornan. There are many non-U.S. citizens living in the Canal Zone. Would you tell the Committee their number? Their national origin? Their native language? Although nominally citizens of Panama, do they feel at home in Panama? Are they discriminated against in Panama? If they were offered U.S. citizenship, would they take it?

Gov. Parfitt.

There are approximately 1,000 non-U.S. citizen employees and about 3,300 family members of those employees living in the Canal Zone. Almost all are descendents of West Indians who, during the Canal construction period, were either contracted for and brought to the Isthmus or came to the Isthmus of their own accord. For the great majority of these individuals, English is their native tongue, although many are fluent in the Spanish language as well. **This** is particularly true among the younger generation because the language of instruction in the Latin American Canal Zone Schools that they attended, for

a number of years, has been Spanish. Many of them, although citizens of Panama, prefer their own communities within the Canal Zone and feel more at home in the Canal Zone than they do in Panama. This is particularly true of the older employees who are not as fluent in the Spanish language as their sons and daughters. These Canal Zone residents are not discriminated against in the Republic of Panama any more than others of their same race, who are also Panamanian citizens and who reside within the Republic of Panama.

Based on the relative large number of Panamanians of West Indian origin who have emigrated to the United States after residence in the Canal Zone, it is felt that most non-U.S. citizen residents of the Canal Zone, if offered U.S. citizenship, would accept it. In addition to the general benefits of U.S. citizenship, as U. S. citizen employees of the Panama Canal Comapny/Canal Zone Government such individuals would receive additional financial benefits.

Mr. Dornan. If circumstances were to prevent the Panamanians from coming into the Zone, could the Canal be operated on an emergency basis by U.S. civilian and military personnel?

Gov. Parfitt.

Almost 90 percent of the Panama Canal Company and Canal Zone Government non-U.S. citizen work force resides in Panama. Daily Canal operations would be seriously affected if those employees were unable to report for work. However, if it is assumed that any non-U.S. citizen employee who is on duty within the Canal Zone at the time would continue to be available for work if he could be provided an adequate place to stay and food to eat, it is quite probable that the Canal could continue to operate on an emergency basis for a short period of time. This would require the curtailment of all but absolutely necessary activities. In such an operation, it would be inevitable that costs would rise and efficiency would decrease.

MINORITY QUESTIONS SUBMITTED FOR THE RECORD
BY R. K. DORNAN
SUBCOMMITTEE ON THE PANAMA CANAL
HOUSE COMMITTEE ON MERCHANT MARINE AND FISHERIES
HEARING HELD JULY 25, 1977

Question 1: I question whether Panama would gain or lose economically by gaining total control of the Canal Zone and Canal. How much net annual income would Panama be able to derive from the Canal with the maximum tolls increase possible without driving away traffic?

Question 2: From other services?

Answer:

In answer to both questions above, I feel that until the precise terms of the Panama Canal treaty being currently negotiated are available, it is impossible to determine how much net annual income Panama would be able to derive from tolls and/or from other services.

Further, it would be even more speculative to estimate how much net annual income Panama could derive once Panama took full control of the operation at the termination of the proposed treaty.

Question 3: How would the total of 1 and 2 compare with present Panama income from direct and indirect Canal and Zone activities including spending by U.S. military and other personnel that would be absent under total Panamanian control of the Zone with no on site U.S. bases remaining?

Answer:

The attached table shows the estimated direct gross payments and income flow to the Republic of Panama from the Canal Zone for the years 1970-1976. The indirect benefits which Panama receives from the U.S. presence in the Canal Zone are also substantial, but essentially immeasurable.

The actual gross payments and income flow shown in the Table cannot be compared to future gains (or losses) should Panama gain control of the Canal Zone until details of the treaty are made available. (Refer to Questions 1 and 2 above).

Question 4: Tell us precisely what is being done with the existing Navy pipelines that traverse the Zone, explaining what their use is, has been, and is to be.

Answer:

The U.S. Navy has four pipelines which were built in the early 1940's. Two are currently in use and two are not. The two lines in use include a 20-inch line with a pumping capacity of 3,400 barrels per hour and a 10-inch JP5 line with a pumping capacity of 1,300 barrels per hour. The two lines not in use are packed with water. Theyinclude a 20-inch line last used for diesel with

a pumping capacity of 3,400 barrels per hour and a 12-inch line with a pumping capacity of 3,000 barrels per hour which has never been used. The system was designed for Atlantic to Pacific pumping and capacity from Pacific to Atlantic is less than the rated pumping capacity. The whole system is workable. The pumps are in good condition but the engines may soon need replacing. Pipeline terminals are at Rodman piers on the Pacific and Dock 16 on the Atlantic and vessels using the facilities are subject to physical limitations similar to those transiting the Canal.

Question 5: Is there any relation to this activity and proposed Panamanian Government oil pipelines or storage facilities for off-loading Alaskan oil for transshipment through the Canal, etc.?

Answer:

There is no relationship. It should be noted that it is planned to take the pipelines out of service from October 1977 to October 1979 during the Panama Canal widening/deepening project.

ESTIMATED GROSS PAYMENTS AND INCOME FLOW TO THE REPUBLIC OF PANAMA
FROM THE CANAL ZONE

1970 - 1976

(In thousands of dollars)

	1970	1971	1972	1973	1974	1975	1976
1. Wages and salaries paid to Panamanian residents employed in the Canal Zone	$ 74,983	$ 78,735	$ 81,418	$ 90,026	$ 96,518	$104,682	$108,823
2. Retirement and disability payments to Panamanian residents	7,303	8,692	9,608	9,800	12,067	14,373	15,126
3. Direct purchases in Panama by U.S. Government Agencies	24,527	23,485	26,125	28,608	36,426	38,761	29,581
(a) Goods	16,887	18,271	20,784	21,656	28,533	28,808	20,601
(b) Services	7,640	5,214	5,341	6,952	7,893	9,953	8,980
4. Purchases of goods in Panama by private organizations operating in the Canal Zone	8,576	8,554	8,273	8,970	40,004	40,687	34,920
(a) Petroleum	3,576	3,054	2,273	2,470	33,504	34,248	27,800
(b) All others	5,000	5,500	6,000	6,500	6,500	6,439	7,120
5. Contractors' purchases in Panama of goods and services for Canal Zone projects	6,926	8,130	7,359	8,955	9,238	12,663	12,727
6. Expenditures made in Panama by residents of the Canal Zone	37,291	38,566	39,108	39,036	40,331	39,636	39,692
Sub-Total	159,606	166,162	171,891	185,395	234,584	250,802	240,869
7. Panama Canal Annuity	1,930	1,930	1,930	2,095	2,328	2,328	2,328
Total	$161,536	$168,092	$173,821	$187,490	$236,912	$253,130	$243,197

TO : DR. STEPHEN GIBBS

FROM: MAJORITY MEMBERS
PANAMA CANAL SUBCOMMITTEE

SUBJ: QUESTIONS IN CONNECTION WITH VITAL INTEREST HEARINGS
HELD JULY 25-27, 1977

Chairman Metcalfe

1. Mr. Kujawa comments in his paper that the U.S. did not build the Canal for economic reasons in the first place. You have studied U.S. Canal objectives, would you comment on Mr. Kujawa's statement?

2. On pages 3 and 4 of your statement, you indicate that the net present value of the Canal to the United States is from $1.8 to $2.4 million. However, you say that these figures would diminish and Panama's economic stake would increase if certain factors were taken into account. Please explain this.

3. Do you think the primary interest of the United States in the Panama Canal is economic or military? How do you relate these two types of interest?

4. In one section of your doctoral thesis, you make the point that the closure of the Panama Canal might actually be a net benefit to the U.S. economy because of the development of domestic transportation alternatives. Could you explain that?

Response to Questions of Chairman Metcalfe:

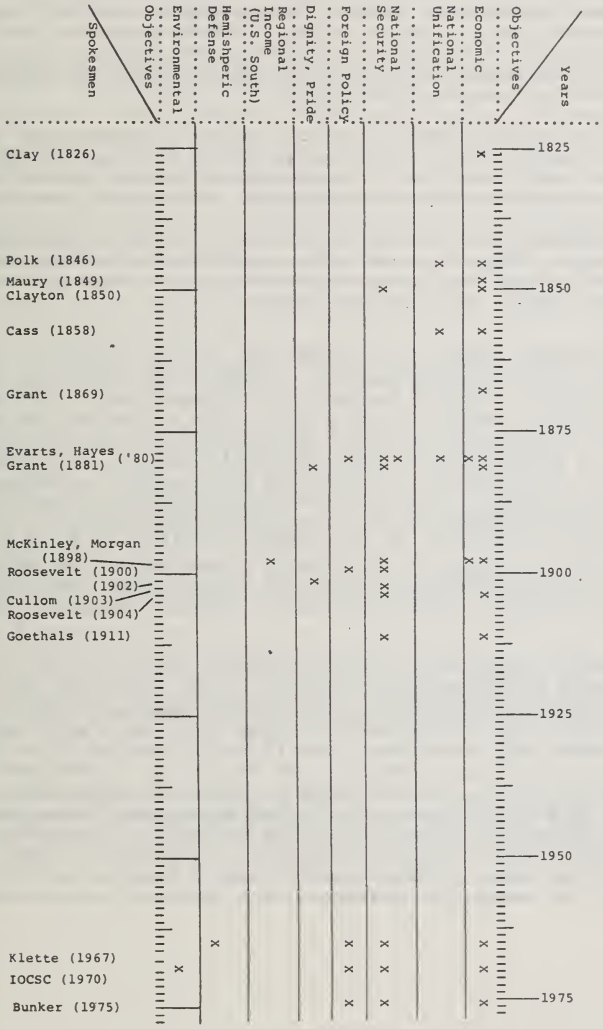
1- I am in accord with Mr. Kujawa's opinion that the undertaking of a Central American canal on the part of the United States was for defensive and not economic purposes. Figure 1, from my dissertation, shows the years in which influential United States public figures stated their views on the desirability of undertaking a canal. The potential economic welfare gains of a canal were first noted in 1826 by Secretary of State Clay and referred to by numerous Secretaries and Presidents thereafter. However, the necessary tools for estimating the net economic benefits of public projects were lacking and were not developed until after the Flood Control Act of 1936 (49. U. S. Statutes at Large 1570). This Act explicitly mandated the linking of costs with benefits when evaluating public projects. Without the necessary tools, it was impossible to ascertain quantitatively whether the economic benefits of a canal project would exceed the costs. The studies undertaken by the United States before and during the Panama Canal construction period were directed to ascertaining the construction costs of various designs and routes. Shortly before the Panama Canal was completed in 1914, an investigation of possible toll systems and toll rates was made by Dr. Emory R. Johnson, (Report on Canal Traffic and Tolls, GPO, 1912; Measurement of Vessels for the Panama Canal, GPO, 1913) The hope at that time was that eventually the Canal would do enough business so that operating costs could be recovered from tolls. No effort was made to relate construction and operating costs to either world economic benefits or United States economic benefits.

Interest in the effect on U. S. national security of facilitating the movement of naval war and supply ships between the oceans was growing by 1850, as indicated by Secretary of State Clayton's communications to Minister Lawrence in the course of negotiating the Clayton-Bulwer Treaty of 1850 with Great Britain. However, it was the Spanish-American War of 1898 which greatly heightened United States national interest in a Central American canal. The 90-day race around South America of the U. S. cruiser Oregon from its anchorage in San Francisco to join the fleet in the Caribbean was followed by the U. S. national papers. The Oregon arrived just in time to participate in the Battle of Santiago on July 3, 1898. The ship's long delay, plus the acquisition of the Philippines and Guam, provided a strong motive for building a canal in the eyes of United States leaders. For example, Theodore Roosevelt, in his Special Message to Congress of January 4, 1904, said:

> *The control, in the interest and traffic of the whole civilized world, of the means of undisturbed transit across the Isthmus of Panama has become of transcendent importance to the United States ....*
>
> *In all the range of our international relations, I do not hesitate to affirm that there is nothing of greater or more pressing importance than the construction of an inter-oceanic canal. Long acknowledged to be essential to our commercial development, it has become, as the result of the recent extension of our territorial dominion, more than ever essential to our national self-defense. In the light*

FIGURE 1

Development of Panama Canal Objectives



of our present situation, the establishment of easy and speedy communication by sea .....presents itself not simply as something to be desired, but as an object to be positively and promptly attained. Reasons of convenience have been superseded by reasons of vital necessity, which do not admit of indefinite delays.

These remarks, which evidence a very strong interest in a canal's national security value, were made slightly over one month after the Republic of Panama ratified the Convention to Construct a Ship Canal to Connect the Waters of the Atlantic and Pacific Oceans, also called the Hay-Bunau-Varilla Treaty, (33 U. S. Statutes at Large 2234).

Given the stress placed on national security considerations by national leaders, the quote given being just one example of many similar statements made at that time, I conclude that improvement of national security was deemed by the United States as the primary net benefit to be gained by building the Panama Canal. The lack of any explicit economic analysis of the project supplements this view, although I know of no strictly military analysis either. The net economic effects which ensued from the undertaking were assumed, at that time, to be either positive or at least not sufficiently negative to outweigh the military benefits.

2- The economic value of the Panama Canal to the United States can be defined in at least two differing ways. One way is to define it as the income which could be had by selling the Canal to the highest bidder. On this basis, the value might be roughly $2 to $4 billion. This assumes that the Canal would continue to be operated in a rational and profit maximizing manner by the purchaser. A second way is to define the Canal's value as the economic welfare loss to the United States which would ensue were the Canal to permanently deny its services to users. Since the United States does not operate the Canal in a profit maximizing manner and since, in this case, the Canal is effectively closed, the Canal's value to the United States is different, being in the range of $1.8 to $2.4 billion 1977 dollars. These figures also represent the net gain to the United States of continuing to operate the Canal according to its historical policy, if the alternative to such operation is to close the Canal.

However, these latter estimates represent the upper limit of the Canal's value according to the definition employed, because closing the Canal would result in economic consequences not evident when examining solely the shipping services of the Canal. The Republic of Panama has become a major center for tourism, banking and international trade in Central America. A portion of these activities has been attracted to the Republic as a consequence of the Panama Canal enterprise. Roughly 40,000 U. S. citizens reside in the Canal Zone or in the Republic proper, many of these being either Panama Canal Company employees or else being part of the associated U. S. military bases. These citizens are paid relatively high wages, in comparison to wages of persons working outside the mainstream of Panama's financial and tourist businesses. The spending of these wages is an important injection into the

Panamanian economy. The Interoceanic Canal Study Commission estimated in 1970 that roughly 26 percent of Panama's Gross Domestic Product was generated as a consequence of the presence of the Panama Canal enterprise within its borders. This percentage was believed in 1973 to have declined as a consequence of a diversification of Panama's economy, but it may well have increased thereafter due to Panama's recession following the 1973 oil price hike. I have estimated that if 20 percent of Panama's Gross Domestic Product is assignable to the Canal operation, this would amount to something between $7 and $14 billion in 1977.

These incomes would not simply evaporate if the Panama Canal closed. Rather, business which had been attracted to Panama, due to the presence of the Canal operation, would relocate to other world regions. For example, Panama has been an important fueling station for ocean shipping and thus earns Panamanians an income. Closing the Canal would cause an expansion in fueling services to shipping somewhere else. It would also result in a relocation of many of these U. S. citizens back to the United States.

I would like to be able to definitively state where and by how much economic activities outside of Panama can be expected to expand if the Panama Canal closed and how much it would contract within Panama. Panama's loss would probably lie within the range mentioned of $7 to $14 billion in 1977, although this is a fairly wide range. Total economic expansion outside of the Republic should be roughly equal to the contraction which would occur within it. The gains which would occur within the United States, stemming from a Panama Canal closure, might be on the order of 27 percent of the loss to the Republic of Panama or between $1.9 and $3.8 billion, assuming that the U. S. percentage of the total expansion is the same as the percentage of the consumer's surplus accruing to the United States from continued operation of the Panama Canal under United States control. Thus the net effect for the United States of a Panama Canal closure could be a loss of consumer surplus of between $1.8 and $2.4 billion balanced by a gain of $1.9 to $3.8 billion, yielding a net gain of between $.1 and 1.5 billion.

I regard the above figures as indicative of the consequences of a Canal closure. The central point is that, insofar as the United States is concerned, the Panama Canal is not of vast economic consequence. The Republic of Panama has by far the largest economic stake in the operation in both an absolute sense and in relation to the size of its economy. This implies further that should Panama be given control of the Canal, it would have great incentive to operate it effectively and efficiently. Whether the Republic would so operate the Canal depends on its managerial ability but certainly not on its will to do so.

2- My judgment is that if the United States has a vital or at least important interest in the Panama Canal operation, it lies in the realm of the Canal's contribution to United States national security. I base this on my

opinion that the economic loss which the United States might suffer, were the Canal turned over to the Republic of Panama, would be inconsequential regardless of how Panama operated the Canal. However, I am not prepared to say that, by default, control of the Panama Canal and the U. S. military presence in Panama are important in a national security sense to the United States. Far too little in the way of analysis of the Canal's military contribution has appeared in the public record, in my opinion, to permit an informed judgment on this aspect. Therefore, I prefer to reserve my opinion until more is known.

However, I have testified that I suspected that control of the Panama Canal is of little national security consequence primarily because the news reports I have seen over the last several years of interviews with the Department of Defense officials reported that it was their opinion that the Canal was a convenience for the movement of naval vessels rather than an essential component of a naval response capability. This judgment may have come about because much of the capability which the Panama Canal provides for moving men and equipment (as opposed to capital ships) can probably be taken up by the commercial alternatives now competing for business with the Canal such as the mini-bridge systems for moving containers across country on railroads, use of cargo aircraft, and routing large ships around Cape Good Hope and Cape Horn. The lack of a public position or a defendable study on this issue, authored by the Defense Department or an independent source, causes me to wonder if in fact a position has been formulated. For this reason, I look forward to examining the public record of these hearings on the U. S. national security interest in the Canal.

It is my hope that the debate on this issue will draw clear distinctions between the contribution of the Panama Canal under U. S. control versus the Canal under foreign control. Furthermore, it should make clear the contribution of the numerous military bases in Panama to U. S. security and whether this contribution is distinct from or integral with U. S. control of the Panama Canal. The debate should probably reference the Canal's role in responding to the Cuban missile crisis and what its role might be in future incidents in South and Central America, Africa, Asia, and Europe. Further, it should emphasize the net consequence of a change in operation or control of the Canal. The study should point out what steps would likely be taken in the event of a closure of the Canal or a change in its control and how important the differences would be between the alternatives and the present arrangement. This is the analogue to an economic study which compares the <u>difference</u> in economic welfare between two alternatives, management and control arrangements, as opposed to emphasizing the absolute scale of either.

4- This is really two questions in one. One question is: Might a closure of the Panama Canal result in a net benefit to the United States, since banking, tourism, transshipment of internationally traded goods and services related to shipping activities would expand in areas outside of the Republic of Panama, perhaps counter-balancing the loss in consumer surplus created by the Panama Canal operation? This question was largely

answered in my response to question number 2. I don't think anyone knows the precise answer to this question, given the uncertainty in both the scale and location of the ensuing expansion of activity, but the consumer surplus loss to the United States would almost certainly be offset somewhat by the relocation of these associated activities. Therefore, the possibility cannot be ruled out that the United States might actually be better off in an aggregate, economic sense by closing the Canal. The counter-balancing gains to the United States and other world regions of a Canal closure would be at the expense of Panama's economy and would devastate it.

The second point raised by this question relates to the purely transportation function of the Panama Canal and the alternatives which compete with it. So long as the Canal offers its services to users at a lower cost than can be offered by any other transportation alternative, the Canal will continue to be heavily used. But the difference in cost between the Canal operation and competing modes has been narrowing over time measured on a per ton of cargo transited basis. Thus the total benefits created by the Panama Canal operation have been subject to two opposing trends - a reduction in benefits per ton transited, caused by the narrowing of cost differences between competing modes, and an increase in total tons transited by the Canal. Were one to examine only the growth trends of cargo moving through the Canal, the impression that followed would probably be one of an economically growing and important operation. This impression would be mistaken, however, because net effects would not be apparent when looking only at gross levels of business. The effect of the opposing trends of net benefit per ton reduction with time and growth of total tons transited was accounted for in the economic analysis reported in my statement.

What then are the alternatives to the Panama Canal which have been causing the narrowing in cost differences and reductions in net benefits per ton of cargo transited? The growth of the mini-bridge system of shipping containers across the United States on the transcontinental railroads has been mentioned previously. It is my understanding that there are now over 80 transportation companies in the United States offering mini-bridge service over 39 different routings and that this alternative has already captured cargoes which might have otherwise been carried through the Panama Canal. So, already the trend line has crossed for these goods and the Canal provides no net benefit, except perhaps in the sense of what is called an option value.

The Panama Canal is also an important waterway for moving bulk cargoes such as grains, oil, coal and ore. These are materials which would not normally be transported in containers. However, these can be carried around Cape Horn and Cape Good Hope in large or supersized ships. Constraints exist on the use of these ships, primarily the lack of adequate depth in many East Coast harbors to handle them, but this is a constraint which will ultimately be largely eliminated, due to the attraction of the favorable economies which use of large ships offer and thus the resulting push to deepen the ports. Since the late 1960's, a portion of the coal moving from

Hampton Roads, Virginia to Yokohama, Japan has been carried around Cape Good Hope. This has been referred to by the Panama Canal Company as by-pass cargo since it passed up use of the Panama Canal, preferring to use a longer route but one which did not constrain it in ship size nor charge a toll for use. For this trade also, the trend in net cost differences between use of the Panama Canal and turning to a transportation alternative has closed.

What of the movement of Alaska crude oil which is so much in the news now? ARCO Vice President William Kieschnick has said, "Destiny has led the country to have most of its oil in the west and most of its thirst for oil in the east." Present plans are to ship the 600 million barrels per day of Alaskan oil which is excess to West Coast needs through the Panama Canal to the east coast. What alternative transportation options exist for this oil and how do these compare in cost to use of the Canal? The alternatives include using super ships to carry the oil around South America (deep ports exist at Caribbean refineries for receipt of this oil), building a pipeline across the northwestern tier of States to the mid-United States, building a pipeline across Central America, or altering some of the U. S. west coast refineries now processing low sulfur Middle East crude to handle the higher sulfur crude of Alaska. The option of trans-shipping the oil at Long Beach, California and piping it to west Texas through an unused gas pipeline appears to be fading, now that California has negotiated a contract with Mexico to import new gas supplies through that pipeline.

The comparative costs of these alternatives are unknown to me, but they are unlikely to be excessive. The cost of using non-U. S. flag super ships, which are now in severe glut on the tanker market and being offered at all time low freight rates, to carry the oil around South America, is likely to be low indeed. The cost of this option might well be less than the use of U. S. flag tankers, which are not in glut and operate mostly in the protected U. S. coasting trade, to carry the oil through the Panama Canal to the East Coast. Use of non-U. S. flag tankers in domestic trades is now precluded by law, but this could be suspended by Congress in order to reap the available gains in national economic welfare if it so chose. The point is that options exist, and the cost advantage offered by access to the Panama Canal for movement of Alaska oil should not be over-emphasized.

Minority Questions by Mr. Dornan of Dr. Stephen Gibbs

1. I question whether Panama would gain or lose economically by gaining total control of the Canal Zone and Canal. How much net annual income would Panama be able to derive from the Canal with the maximum tolls increase possible without driving away traffic?

2. From other services?

3. How would the total of 1 and 2 compare with present Panama income from direct and indirect Canal and Zone activities including spending by U.S. military and other personnel that would be absent under total Panamanian control of the Zone with no on site U.S. bases remaining?

4. If as you say, the U.S. now might easily have alternative modes of transport -- if the Canal had not been built -- what alternative routes might Latin American countries that rely heavily on the Canal have developed?

5. What sufficient alternative routes and modes of transport will they develop if Canal efficiency, etc. deteriorates under Panamanian control?

Response to Questions of Mr. Dornan:

1. Were the Republic of Panama to control the Panama Canal operation and establish its own toll system and rate levels, it is my belief that more could be gotten from Canal users than is possible by ratcheting up the rates charged by the Panama Canal Company. This comes about because the toll system authorized by the Congress for use by the Company is designed to serve a number of purposes in addition to being a vehicle for financing the Canal operation. It is intended that the toll system be simple to understand, easy to administer, minimize the temptation for fraud, generate sufficient revenue to cover costs of the Canal operation and remain fairly stable. All of these are desirable characteristics and the present toll system serves these purposes as well as any system could. However, a profit maximizing operator of the Canal might find it profitable to incur more costs of administration if it increased toll revenues more than it increased costs. Likewise, rate stability might be slightly lower if it was found that shippers did not react adversely in greater proportion than was taken in through higher toll revenue. Thus a profit maximizing operator, employing a different set of purposes than the United States, would likely find a different toll policy to be preferable, would likely employ a different toll system and set of toll rates as a result, and thus might well be able to take in more in revenues than the United States could. This assumes that the United States adheres to the present dual rate toll system and policy of operating the Canal as an international utility.

This reasoning explains the difference in the estimates given by Mr. Kujawa and myself concerning the potential increase the Canal operator could obtain in toll revenue. Mr. Kujawa has stated that the United States toll rate can be raised only 25 percent more before the increase in income from the high rates would be less than the loss which would occur through the ensuing reduction of transit business. The 25 percent rate increase would produce a fairly small net increase in revenue. However, since the net discounted consumer surplus created by the Canal is in the range of $6.5 to $8.9 billion in 1977, it should, in principal, be possible to capture this through higher tolls. In practice, it isn't possible to capture all of this surplus because the information required to assess each cargo ton precisely the maximum amount possible without turning it away is too costly to obtain to make the effort worthwhile. For the same reasons, it is much more efficient to finance the United States road system through gasoline taxes, which do not discriminate how valuable the gasoline and the use of the road is to users, than to put a toll station at every intersection and charge drivers for use of that particular road. The hinderance to traffic would more than absorb any gains achieved by using a highly precise assessment system.

What then would be the added annual income Panama could derive from the Canal without driving away traffic? It is my guess that it would work out to less than one-half of the residual benefit (consumer surplus) accruing to Canal users or be in the range of $2 to $4 billion in 1977 in net present value terms. One might at first think that the annual gains would be some constant fraction of the lump sum figure, being in the range of

$200,000 to $400,000 annually for a 10 percent social rate of discount. However, there are very important differences in the short run and long run opportunities for diversion of trade from the Canal, the opportunities being considerably more limited in the short run than in the long run. Thus toll rates could, in principle, be jacked up for a few months or a year to levels astronomically higher than those presently in use, but then they would have to fall fairly quickly before significant levels of traffic diversion could occur and investments in different transportation alternatives could be undertaken. The operator would, in effect, have to bluff Canal users. But this strategy could well backfire too with shippers preferring to undertake high cost alternatives rather than expose themselves to possible gyrations in toll levels designed to wring out the last drop of income. Where this game would settle is anyone's guess. The Suez Canal authority has evidently chosen to be fairly predictable with its toll policy, charging rates that make use of that waterway marginally cheaper than other transportation alternatives from a long-run standpoint. However, that situation is quite different than the case for the Panama Canal since traffic was, at the time the Suez Canal opened, adjusted to a condition of no-Suez which is equivalent to the long-run condition. Therefore, that authority did not have the short-run captured market that an operator of the Panama Canal would have.

Since the toll level a profit maximizing Panama Canal authority might choose to set could vary from year to year, being tailored to reap all the gains available from a market which is essentially captured in the short-run, and since it is unknowable how shippers would react to the signals of price and behavior sent by the authority, I am unable to provide an annual income figure which relates to my figure of $2 to $4 billion for a Canal sale price.

Since Mr. Kujawa and I have adopted different assumptions in our analysis, this leads to our differing conclusions about possible maximum toll levels. Both of us are in accord, however, that should the Republic of Panama obtain control of the Panama Canal, its freedom of action relative to tolls is likely to be relatively limited, since even $3 billion dollars lump sum is not large when one realizes that this figure represents the lifetime gains available from the Canal and that annual charges would be spread out through 40 or more years, although not uniformally, and spread over many users of the Canal.

2. The services offered by the Panama Canal Company and Canal Zone Government may be divided into those immediately associated with operation of the Canal and those which are not. The former includes the provision of tug assistance, line handlers, pilots, and so forth. I have included these activities with transit functions of the Canal, and my answer to question number 1, then, covers these services also.

Services not immediately associated with the Canal operation include hospital care, education, police and sanitary functions, courts, postal services, power and water supplies and some business such as bowling alleys and stores. The businesses are being phased out by the Canal Company and left to Panamanian entrepreneurs to provide where it is reasonable to do so. I have not studied these activities and services.

3. As stated in my answer to the second question put by the Chairman, roughly 20 percent of Panama's Gross Domestic Product may be generated by the presence of the Canal and the associated military bases and businesses attracted to the region. This may be the equivalent of $7 to $12 billion net present value. I consider this to be largely an open question, however, as I have not investigated this aspect and the research from which I extracted the figure of 20 percent is now about 10 years old.

4. The Panama Canal has probably been of considerable importance to the development of South and Central American economies because the alternatives for carriage of trade which would have come into being, had the Panama Canal not existed, would probably have been relatively costly. The primary alternatives from the 1920s to the 1960s would have been longer sailing of relatively small transporting ships on routes which rounded Cape Good Hope or Cape Horn. A second alternative which would probably have been of importance would have been the development of alternative markets and sources of goods. For example, banana exports from the West Coast of Central America to the U. S. east coast which occurs now would not have been possible before the 1960s, but exports to the U. S. West Coast would have been larger. Nevertheless, the scale of trade probably would have been significantly smaller and the gains from trade, significantly less because the means by which trade could be carried on would have been more limited than they actually were, thanks to the existence of the Panama Canal.

After about 1960, the lack of canal would probably have been somewhat less important, primarily because of trends toward increased ship size, deeper ports to accommodate the larger ships, increasing use of air freight, the development of containers for carrying general cargo and the potential for isthmus-spanning road systems in Central America. Bulk cargoes could have been carried around the Capes in large vessels, while general cargoes would have had a variety of options for transport between the oceans via road, rail or airplane. I have no knowledge of Latin American cargoes which have been attracted away from use of the Panama Canal like coal shipments from the U. S. East Coast to Japan have been. Nevertheless, it is not unreasonable to assume that the cost differences between use of the Panama Canal to carry Latin American trade and use of larger ships on longer routes or use of overland haulage by truck or rail has narrowed since 1960.

5. In answering this question, I must correct an error of mine which occurred during the questioning period. I, unfortunately, stated that toll increases or a reduction in service quality at the Panama Canal, which would have the effect of reducing the consumer surplus accruing to Panama Canal users, would impact more so on developed countries than on developing countries. In fact, research into the pricing of international trade supports the opposite case. Developing countries tend to be relatively exposed to alterations in transport cost, while developed countries, due to the nature of the supply and demand conditions for the goods they trade, tend to be relatively insulated. In my research, I have used a ratio of 3/4 to 1/4

for the impact of cost increases for trade (passing through the Panama Canal) between developing and developed countries. The figures given in Table 2 of my statement are correct and show, for example, that were the Panama Canal to close and a net present value loss in consumer surplus of $8 billion to ensue, that South America would suffer a loss of 16.5 percent of this value, or $1.3 billion net present valued. Alternatively, if a profit maximizing level of tolls were to be charged at the Canal, bringing in the lump sum equivalent of between $2 and $4 billion, then somewhere between $330 million and $660 million would come from the pockets of South Americans. These potential losses account for the concern which Latin American leaders are reported to have privately expressed for the future of the Canal. They are faced with the dilemma that supporting Panama's claim to the Canal may cost them if that claim is satisfied and the Canal is turned over.

The alternative transport modes which could be turned to if transit conditions at the Panama Canal deteriorated or tolls were raised excessively are listed in my response to question number 4. These are modes which would have come into being had the Canal never existed.

Responses by Margaret Daly Hayes.

Question: Chairman Metcalfe

1. Your estimates of future Canal traffic vary from those indicated in other testimony. Coul you explain why that might be, and why you feel your statistics are better, if you feel that way?

While we have considerable confidence in our estimates, they are subject to the caveats that accompany any forecast of factors as subject to variation as are the factors influencing international commerce. Our estimates are more conservative than those produced by other forecasters. I believe this is due to the following factors.

- They are based on a longer time base than several other forecasts. Thus they result in lower growth rates because the forecast base period does not only include the period of very rapid growth of the early 1970's. The forecasts reflect the downturn in traffic volume of 1975 and 1976.

- Given that shipping costs have risen more than any other component, our analysis looked very closely at prospects for alternative closer suppliers of important commodities and assumed that these suppliers would receive contracts in the future to reduce the costs of imports.

- The MarAd forecasts appear to assume that U.S. foreign trade will increase by 200-250 percent by the end of the century and that this increase will be directly translated to U.S. commerce through the Canal. While we do not dispute the prospects for such increase in U.S. foreign trade, nor of a parallel increase in international commerce in general, we disagree that this traffic will use the Panama Canal in the same proportion.

- As U.S. ports are expanded, larger ships, unable to transit the Canal, will be used. The U.S. will trade with different countries in the future than in the past. The increasingly attractive landbridge system may draw off a substantial share of Canal traffic. The most striking increase in international trade is likely to be seen in the developing world.

- The LDC's will trade with the developed world (Japan, Europe, the U.S.) and with each other, but much of their trade will not pass through the Canal because of the location of trading partners. LDC trade is the trade that is expected to increase most significantly over the next 2 decades.

2. You state that closure of the Canal would have a miniscule effect on the U.S. economy. Do you think that any one economic factor, either inflation, or employment, or productivity, would be perceptibly affected by closure of the Canal.

No, particularly as measured in aggregate terms. I might add that I think closure of the Canal is a low probability event.

Question: Mr. Dornan

1. I question whether Panama would gain or lose economically by gaining total control of the Canal Zone and Canal. How much net annual income would Panama be able to derive from the Canal with the maximum tolls increase possible without driving away traffic?

We have not studied the impact of different tolls increases in great detail. I refer the congressman to several studies done for the Panama Canal Company by International Research Associates and Economic Research Associates, two California firms. These studies conclude, I believe, that maximum tolls increase feasible ranges between 50 and 75 percent over 1974 tolls (before recent increases). That is the maximum increase before some traffic begins to seek alternative suppliers and routes. Assuming a 50 percent increase, $180 million could have been earned in 1974 (1974 tolls revenue was $121 million). After that, some traffic would be driven away, so a ball park estimate of maximum toll revenue might approach $200 million in 1974 prices.

2. From other services?

Other operating revenue amounted to $94 million, approximately 40% of total revenue in 1974. This would decline as a proportion of total revenue under a toll increase, since the number of transits can be expected to grow at a steady but slow rate up to approximately 23,000-25,000 by 2000 according to most forecasts.

3. How would the total of 1 and 2 compare with present Panama income from direct and indirect Canal and Zone activities including spending by U.S. military and other personnel that would be absent under total Panamanian control of the Zone with no on-site U.S. bases remaining?

Direct and indirect income from Canal activities is currently calculated at approximately 13% of Panama's GNP of $2128.2 million (1975) or $277 million. This is about equal to the total income derivable under the 50% toll increase hypothesized, plus about $100 million in revenue from other services (1974 prices). Panama would likely expand services to Canal-related traffic and other international commercial and banking activities as a result of its control over present Canal Zone territory. The Colon area for example would be expanded. Assuming Panama is successful in its expansion efforts, it would undoubtedly gain economically from control over the Canal Zone and Canal. All of this of course would occur in the fairly distant future.

RESPONSES BY LEONARD J. KUJAWA.

Metcalfe Question No. 1

The law that established the Panama Canal Company/ Canal Zone Government in 1950 separated the Canal's defense costs from those of its commercial operations. In my opinion, this was a proper separation in that defense costs are not directly attributable to any specific commercial operation. The defense costs of the United States are considered part of the general overhead for the entire U. S. economy and they are thus shared by U. S. citizens and corporations through various forms of taxes but principally income taxes. Because the Panama Canal Company is not required to pay income taxes to the U. S. Government, it is different than other U. S. commercial entities in that it bears no part of defense costs. Even if it were U. S. policy for the Panama Canal Company to pay income taxes, the level of tax would be difficult to establish because the Company is by law precluded from earning income.

While it does not share in defense costs, the Panama Canal Company is required to reimburse the U. S. Government for the net cost of the Canal Zone Government. This net cost includes principally the civil government functions of education, health care and police and fire protection. Such costs are similar to those that are incurred by any U. S. city. Thus, if you envision

a U. S. city with one major employer (similar to the Canal Zone), that employer must pay a substantial portion of the cost of education, health facilities and fire and police protection in that city, with the remaining share being borne directly by the citizens of the city.

Metcalfe Question No. 2

The present Canal provides service to ships smaller than 70,000 dead weight tons and ships of this size currently comprise over 90% of all of the ships in the world. The Canal is able to provide this service at toll rates which are attractive to those ships and which, in the aggregate, recover the cost of providing the service. Based on present traffic projections, the existing Canal has the capacity to accommodate ships of similar size for at least the remainder of this century. Accordingly it seems logical to consider a replacement to the existing Canal only if ships larger than 70,000 dead weight tons are to be accommodated. However, such a proposition is not economical because the cost of constructing and operating a new canal would far exceed the revenue potential from both the ships which presently use the Panama Canal and those additional deeper draft ships which the new facility would attract.

Metcalfe Question No. 3

To my knowledge there have been no studies made measuring the benefits that the U. S. economy has received from the existence

of the Panama Canal. Unquestionably the United States, along with the rest of the world, has obtained economic benefits from the existence of the Panama Canal. It should be recognized, however, that most of these benefits have been received by foreign nations since the United States traffic accounts for only about one-third of the use of the Panama Canal.

Dornan Question No. 1

There are two distinct measurements which must be recognized in considering the question of the degree of economic benefit which would accrue to the Republic of Panama through the assumption of total control of the Canal Zone and the Canal: (1) The one-time benefit associated with the assumption of the investment therein at no cost; and (2) The on-going benefits attributable to operating the facilities thereof as commercial activities. Among other ways, the former benefit can be measured by adjusting the original construction cost of the investment to reflect the current value of the dollar. This process produces a resultant benefit in excess of $3 billion, considering the combined facilities of the Panama Canal Company and the Canal Zone Government.

With respect to the on-going benefits which could be realized from Canal tolls, there have been several studies made since 1965 regarding the maximum revenue potential of the Panama Canal. The latest study was dated early in 1975 and indicated that tolls could be raised to yield approximately 75% more revenue than

levels then in effect without substantial offsetting traffic losses. Since that study was made, toll increases aggregating approximately 50% have been imposed by the Panama Canal to compensate for cost increases. This would tend to indicate that tolls could be raised to yield at least 25% more revenue although the amount is, in all likelihood, somewhat higher because conditions have changed somewhat since the date of that last study. The principal change since that study has been continued worldwide inflation which has affected the costs of the alternatives competing for Canal traffic, as well as the Canal itself. Thus the 25% could be adjusted at least for the effects of the changed conditions on the costs of Canal alternatives.

With toll revenue for the current fiscal year estimated to be in the range of $170 million, a 25% increase in tolls would yield an additional $42.5 million. Thus, if the objective is to maximize net income, this is the gross amount of additional profit available, ignoring the effects of inflation since early 1975. It should be recognized, however, that Panama Canal operating costs will undoubtedly increase in the future due to inflation and this would reduce the amount of economic benefit available as the years go by.

Dornan Question No. 2

Other services of the Panama Canal Company are provided to three principal user groups: employees; shipping; and, U. S. military organizations in the Canal Zone. Regarding services to

employees, price increases to maximize profit may have to be offset by higher wages to meet such increases and thus tend to be offsetting. Other transit services to shipping, such as tugs and line handler services, are limited by the same considerations as toll increases previously discussed so there is little additional benefit to be derived from this source. While there may be some ability to raise prices for such things as ship bunkering and stevedoring, these tend to be relatively minor activities. Regarding services to the U. S. military organizations for such things as electricity, water, education and health facilities, to the extent that the recipients are somewhat at the mercy of those providing the service, prices probably could be increased to achieve a greater net income. Of course, if these prices are increased, U. S. military costs for troops in the Canal Zone would increase correspondingly.

Dornan Question No. 3

Economically, the Republic of Panama would probably not be able to realize a gain if she were to assume control of the Canal and Canal Zone with no U. S. military forces remaining in the country. While I cannot cite any statistics with respect to benefits to the Panamanian economy derived from the existence of the U. S. military and other personnel in the Canal Zone, the sheer number of U. S. personnel involved indicates that the amounts are likely to be substantial. Since, as I previously discussed in responding

to Questions 1 and 2, the ability to achieve greater net income from either raising tolls or other prices is somewhat limited, there is a very real possibility that the net loss from the elimination of U. S. military activities in the Canal Zone would at least be equal to the potential for net gain through price increases.

UNITED STATES DEPARTMENT OF COMMERCE
The Assistant Secretary for Maritime Affairs
Washington, D.C. 20230

AUG 29 1977

Committee on Merchant Marine and Fisheries
Subcommittee on Panama Canal
House of Representatives
Washington, D. C. 20515

Gentlemen:

I am pleased to reply to the three questions raised by Mr. Dornan concerning the written material that I submitted to the Subcommittee on July 25.

Design Features of U.S. Ships

In mentioning the design of American ships, I was specifically referring to the relative size of most of our ships in comparison with many foreign flag vessels. Nearly all U.S. ships that are operated on routes that run through the Panama Canal were designed and built to be operated on those routes only. If use of the Canal were denied to them, they would be forced into competition with much larger ships that were designed without the Canal size limitations in mind. The cost disadvantage of operating our ships in competition with larger ships where large amounts of cargo are to be moved is apparent. Obviously, the greater the number of ships that must be employed to lay down a given amount of cargo, the greater will be the operating costs involved. Aside from relative size and cargo carrying capacity consideration, there are no design features that inhibit American ships from operating on any of the sea routes of the world including navigating around Cape Horn. In fact, Prudential Lines' four Magdelena class vessels are regularly operated in the relatively hazardous waters off Cape Horn.

Economic Impact of Canal Closure on U.S. Shipping

Any assessment of the annual economic impact of a long-term Canal closure on U.S. shipping requires certain significant assumptions. For example, given a static market situation where the cargo markets after closure remain the same as before closure, it is clear that U.S. shipping would encounter increased operating costs of several hundred million dollars per year due to the need for greater shipping capacity and higher cost per ton of transportation. How severely this would impact on operators would then depend on their ability to pass these costs on to the consumers of their services.

The validity of the static market assumption is obviously open to question. Some markets such as the U.S. East Coast market for Ecuadorian bananas and Colombian coffee would probably disappear, while other movements such as ores and concentrates from Peru and Chile would tend to be captured by operators of larger vessels. While the loss of isolated markets such as the ones described might not be significant for U.S. consumers, the ultimate, aggregate impact on most U.S.-flag vessel operators, would nevertheless be a serious loss of business.

The static market assumption was used by MarAd in a 1974 study, The Panama Canal in U.S. Foreign Trade: Impact of a Toll Increase and Facility Closure. At that time we estimated that the delivered cost of U.S. trade commodities then transiting the Canal, both exports and imports plus intercoastal cargo, would increase by $1.5 billion if they had to be delivered by another sea route. This increase was attributable primarily to increased fuel costs which the study assumed would be passed through to the consumer. With U.S.-flag shipping accounting for about 10 percent of all Canal cargo flow, this increase would translate into costs of about $150 million for U.S. flag operations alone. In view of the generally rising costs since 1974, the earlier suggestion of total increased annual operating costs of several hundred million dollars appears to be quite reasonable. To use the terms of our 1974 study, this increased annual cost resulting from closure of the Canal would be a short-run effect to be followed by an indeterminate long-run cost effect after world markets had undergone a series of adjustments.

Major U.S. Trade Routes Using the Canal and Alternatives

A list of the major U.S. trade routes that use the Canal and the all-water non-Canal alternatives is enclosed. This list may be summarized as follows:

Generalized All Water Route and Typical Port Pair	R.T. Distance in Statute Miles		Percent Increase
	By Canal	Alternative Water Route	
U.S. East Coast/Gulf-Asia (New Orleans-Tokyo)	18,250	28,814 (via Suez) 31,524 (via Cape Horn)	58 73
West Coast U.S.-Europe (Los Angeles-Rotterdam)	15,510	26,668 (via Cape Horn)	72
East Coast U.S.-West Coast S. America (Baltimore-Huasco, Chile)	8,628	18,786 (via Cape Horn)	118
West Coast U.S.-North or East Coast S. America (Los Angeles-Laguaira, Venez.)	13,420	23,154 (via Cape Horn)	73
U.S. Intercoastal (Los Angeles-New York)	9,862	25,610 (via Cape Horn)	160

In point of fact, as I indicated in my written reply to Question 13 of the Subcommittee's original request, a considerable amount of cargo could be expected to be diverted to combination systems of land and sea transport, commonly referred to as minibridge systems. Under this diversion, U.S. East Coast or Gulf shipments to the Far East or to the West Coast of South America would tend to go overland to the West Coast where the cargo would then be loaded onto ships for transport by sea. West Coast shipments to the East or North Coast of South America or to Europe or Africa would tend to be shipped overland to the U.S. East or Gulf Coasts for transfer to ships. Present waterborne domestic shipments between the East/Gulf Coasts and the West Coast would rely on land transport completely for many commodities and at least partially for bulk commodities where construction of pipelines or other transshipment facilities in Panama or elsewhere might make a sea-and-land combination system economically viable.

Canal closure would force changes in overall U.S. shipping industry operations. There would be a redefinition of the major U.S. trade routes, as listed in the enclosure, in terms of their land-transport component. I think it may be predicted that some shipping companies, economically unable to make the necessary adjustments in their operations, could go out of business.

I hope this material will be helpful to you in your review and analysis of the recent hearings. I will of course be happy to supply additional material or to cooperate in any way that I can to aid your work.

Sincerely,

(Sgd.) Howard F. Casey

HOWARD F. CASEY
Deputy Assistant Secretary
for Maritime Affairs

Enclosure

Enclosure

Major U.S. Trade Routes Through the Panama Canal and Their All-Water Alternatives

Trade Route No.	Description
2	U.S. Atlantic/West Coast South America. Between U.S. Atlantic ports (Maine-Atlantic Coast Florida to but not including Key West) and ports in Pacific Coast Colombia, Ecuador, Peru, and Chile. Alternative: Same ports via Cape Horn or the Strait of Magellan.
12	U.S. Atlantic/Far East. Between U.S. Atlantic ports (Maine-Atlantic Coast Florida to but not including Key West) and ports in Japan, Taiwan, Philippines, and the Continent of Asia from the Union of Soviet Socialist Republics to Thailand, inclusive. Alternative: Same ports via the Suez Canal.
16	U.S. Atlantic and Gulf/Australia and New Zealand. Between U.S. Atlantic and Gulf ports (Maine-Texas, inclusive) and ports in Australia, New Zealand, New Guinea, and South Sea Islands within the general area. Alternative: Same ports via Cape Horn or the Strait of Magellan.
17	U.S. Atlantic, Gulf, and Pacific/Indonesia, Malaysia, and Singapore. Between U.S. Atlantic, Gulf, and Pacific Coast ports and ports in Indonesia, Malaysia (Malaya, Sarawak, and Sabah), Singapore, and Brunei. This is a round-the-world route that currently uses both the Panama and Suez Canal. Alternative: Same via Cape Horn or the Strait of Magellan instead of the Panama Canal.
22	U.S. Gulf/Far East. Between U.S. Gulf ports (Key West-Texas, inclusive) and ports in Japan, Taiwan, Philippines, and the Continent of Asia from the Union of Soviet Socialist Republics to Thailand, inclusive. Alternative: Same ports via the Suez Canal.

Trade Route No.	Description
23	U.S. Pacific/Caribbean. Between U.S. Pacific ports (Washington-California, inclusive) and ports in the Gulf of Mexico and Caribbean Sea (Mexico-French Guiana, inclusive) and all islands of the Caribbean and West Indies (except Puerto Rico). Alternative: Same ports via Cape Horn or the Strait of Magellan.
24	U.S. Pacific/East Coast South America. Between U.S. Pacific ports (Washington-California, inclusive) and ports in Brazil, Paraguay, Uruguay, and Argentina. Use of this route involves a circumnavigation of South America by way of the Canal and the Strait of Magellan. Alternative: Pass through the Strait on both legs of the voyage.
26	U.S. Pacific/Western Europe. Between U.S. Pacific ports (Washington-California, inclusive) and ports in the United Kingdom, Republic of Ireland, and Continental Europe north of Portugal. Alternative: Same ports via Cape Horn or the Strait of Magellan.
31	U.S. Gulf/West Coast South America. Between U.S. Gulf ports (Key West-Texas, inclusive) and ports in Pacific Coast Colombia, Ecuador, Peru, and Chile. Alternative: Same ports via Cape Horn or the Strait of Magellan.

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
WASHINGTON, D.C. 20590

AUG 19 1977

Honorable Ralph H. Metcalfe
Chairman, Subcommittee on
Panama Canal
Room 1334 Longworth H.O.B.
Washington, D.C. 20515

Dear Mr. Chairman:

During the course of the "vital interest" hearings held by the Subcommittee on Panama Canal on July 25, 1977, you indicated that members of the Subcommittee may subsequently wish to ask questions relating to the testimony of each witness on the several economic panels. In accordance with that understanding, I am pleased to respond to a question posed by Mr. Dornan of the Subcommittee sent to me by your staff respecting the availability of any studies dealing with limitations on intermodal shipments attributable to inadequate port facilities, as it may relate to the Panama Canal.

As I indicated in my testimony, as a practical matter the ability of the railroad industry to actually absorb part or all of future Panama Canal traffic in bulk commodities rests primarily upon transportation cost considerations for the commodities concerned, in comparison with available ocean vessel alternatives. Unlike containerized commodities of relatively high intrinsic value, dry bulk cargoes such as coal and grains are far more sensitive to combined freight rate differences resulting from changes in inland and ocean transportation relationships. These relationships are clearly also the product of intense competition between and among inland transportation carriers and ports, as much as they are the product of changing ocean vessel economics and routing options. Therefore, the capacity of alternative ports becomes a factor only if the precondition of comparable total transportation cost is satisfied. And that is why a commodity such as Appalachian metallurgical coal would very likely continue to move to Asian ports via the Atlantic ports irrespective of the existence of any Pacific port transfer capability, because it is less expensive.

I have enclosed a copy of a recent study performed for the Department by the Center for Transportation Studies of the Massachusetts Institute of Technology entitled, Federal Port Policy in the United States. This report is a comprehensive treatment of the numerous issues surrounding port development in the United States, including the complex institutional environment surrounding port operations, economic development and the instrumentalities necessarily involved. I would particularly commend to the Subcommittee staff the extensive listing of studies and analyses performed by other Federal agencies, as well as those available from local or private interests.

I appreciate the opportunity to provide further information on this matter and hope that these comments will be of assistance to the Subcommittee in determining the appropriate role of the railroad industry in the movement of bulk commodities in international commerce.

Sincerely,

James W. Boone

James W. Boone
Director, Office of Rail
Economics and Operations

Enclosure

Responses of Brig. Gen. Irwin P. Graham, Joint Chiefs of Staff

HEARINGS BEFORE HOUSE MERCHANT MARINE AND FISHERIES COMMITTEE, PANAMA CANAL SUBCOMMITTEE ON 26 JULY 1977

Subject: US Interest in Canal Zone

Responses to Majority Members:

QUESTIONS 1 and 2:

1. In a letter to the President, four former Chiefs of Naval Operations stated "As Commander-in-Chief, you will find the ownership and sovereign control of the canal indispensable during period of tension and conflict." Would you comment and respond to that statement?

2. Further on in their letter to the President, these former Chiefs of Naval Operations stated: "It is our considered individual and combined judgment that you (the President) should instruct our negotiators to retain full sovereign control for the United States over both the Panama Canal and its protective framework, US Canal Zone, as provided in the existing treaty."

General, is the considered individual and combined judgment of the Joint Chiefs of Staff, whom you represent today, the same as or different than, the judgment of these gentlemen?

ANSWER: Sovereign control and ownership are political matters as opposed to use and availability which are military matters within the purview of the Department of Defense. The use of the canal is important to the achievement of US military objectives. The Joint Chiefs of Staff believe that the preferred way to protect and defend the canal, thereby insuring its use when needed, is in conjunction with a cooperative Panama motivated by its own vested interest in protecting the waterway. A new treaty, which provides a basis for development of a continuing alliance between the United States and Panama is of significant importance in insuring that the canal will be available to the United States. As President Carter has stated "we will have operating control and the right to protect and defend the canal with our own military forces until the end of this century. Under a separate neutrality treaty, we will have the right to assure the maintenance of the permanent neutrality of the canal as we may deem necessary."

If the Soviet reaction to the canal would be the same under US or Panamanian control, can we conclude that our relationship with Panama is the key to safeguarding the canal?

ANSWER: The military significance of the canal will not be altered whether it is under US or Panamanian control. Therefore, it follows that the Soviet posture would be the same regardless of who operates the canal. Soviet action, however, will depend on cost and perceived outcome. The Soviets have the capability to close the canal by force. Under the current treaty, potential exists for Soviet political activity to influence events in Panama and enhance anti-US attitudes. The US response should be to align US and Panamanian interests through a new treaty relationship so as to facilitate maintenance of an open canal.

QUESTION 3: Do you believe that during hostilities with the US or our allies the posture of the Soviet Union with respect to the operational continuity of the Panama Canal would be any different if there were Panamanian rather than US control?

If the Soviet reaction to the canal would be the same under US or Panamanian control, can we conclude that our relationship with Panama is the key to safeguarding the canal?

ANSWER: The military significance of the canal will not be altered whether it is under US or Panamanian control. Therefore, it follows that the Soviet posture would be the same regardless of who operates the canal. Soviet action, however, will depend on cost and perceived outcome. The Soviets have the capability to close the canal by force. Under the current treaty, potential exists for Soviet political activity to influence events in Panama and enhance anti-US attitudes. The US response should be to align US and Panamanian interests through a new treaty relationship so as to facilitate maintenance of an open canal.

Responses to Minority Questions by Mr. Dornan:

QUESTION 1: The US Navy has perhaps 500 fewer ships than during World War II. Does the Department of Defense agree with Colonel Sheffey's testimony that we now only have a one and one-half ocean Navy?

ANSWER: "CLASSIFIED"

QUESTION 2: If not, does the US have an adequate two ocean Navy?

ANSWER: "CLASSIFIED"

QUESTION 3: Ignoring budgetary limitations, how many of which type vessels does DOD feel the Navy should have to bring our Atlantic and Pacific fleets up to full complements so each could operate independently of the other in its own area--as for the most part would be a requirement were there no interoceanic canal?

ANSWER: "CLASSIFIED"

4

QUESTION 4: Estimate the added escort and other antisubmarine operational costs to US taxpayers in World War II had Navy vessels and defense-related shipping been forced to go around the Horn and been exposed to 8,000 more miles of enemy submarine surveillance and possible attack.

ANSWER: Such costs are not readily available and would require considerable resources to research. The answer, at best, would depend upon speculating about German and Japanese capability and priorities with regard to interdiction of the route around the Horn. Such speculation would not provide a reliable basis for valid conclusions. In addition, if the canal had not been available, greater use would have been made of lines of communication across the United States.

5

QUESTION 5: Estimate the total increased cost to US taxpayers

a. in World War II
b. in Korea
c. in Vietnam

had there been no operational Panama Canal.

ANSWER: Though such historical costs are not available, the interoceanic canal studies of 1970 provided by the Atlantic-Pacific Interoceanic Canal Commission hypothesized the following case: without the canal movement of 80,000 personnel and 3 million tons of supplies to the Pacific from Atlantic and Gulf ports would require twice the number of ships to support operations in the Pacific at the same level of support provided by resupply through the canal. It is important to note, however, that extrapolation of such a case to some future contingency may lead to misleading conclusions since costs will be related to the scenario developed.

QUESTIONS 6, 7 and 8:

6. Assuming no interoceanic canal were operational:

What type of war, and of what scope and duration, could the US wage in the Pacific Basin if 100 percent of our oceanborne logistical support had to be shipped from West Coast ports?

7. Same question -- if East Coast shipping around the Horn began arriving 15 to 30 days later?

8. What limitations are placed on US offensive and defensive capabilities in the Pacific area by what specific disadvantages of West Cost port facilities?

ANSWER: "CLASSIFIED"

QUESTION 9: What shipping losses and what costs of such attrition might be expected if 100 percent of East Coast logistical supply had to go around the Cape to the various possible Pacific coast combat areas in answer 6.

ANSWER: Attrition in the South Atlantic and in the Pacific will depend on the scenario. For example, in a contingency involving North Korea or China, no appreciable attrition is envisioned by current US planning because these countries do not have significant naval forces. In addition, sea lines of communications will be more secure if we continue good relations with Latin American nations, most of whom publically support a new treaty.

QUESTIONS 10 + 11:

10.

Mr. Cox mentioned that he thinks Castro might at some time use Guantanamo for its hostage value.

Should we give the Canal to Panama, could not some Panamanian terrorist group, or some nonterrorist political party in opposition to Torrijos--or in opposition to some successor of his--hold the canal hostage against the Panamanian leadership in the same way Mr. Cox indicated Castro may hold Guantanamo hostage, or, in fact, in much the same way Torrijos himself is presently holding the canal hostage against us by his warnings of sabotage and his threats to lead Panamanians down "another Ho Chi Minh Trail" to take over the Zone?

11. If so, then is it not true that by giving the canal to Panama we in no way would be providing for a canal that is any more "open, efficient, neutral and secure" than it is right now under our own total control, even though the present nationalistic aspect would have disappeared?

ANSWER: Any US base, particularly overseas is vulnerable to sabotage. In this regard, Panama may be no different than Europe. As indicated in the answers to Congressman Metcalf's questions, the preferred way to enhance the security of the canal against sabotage is through cooperation with Panama. If Panama's interests can be aligned with US interests, then Panama will have a vested interest in defending the canal. The result would be Panamanian-US cooperation which would greatly simplify the problem of neutralizing threats of sabotage caused by terrorist groups by removing a major cause for dissident activity in Panama.

QUESTION 12: Tell us precisely what is being done with the existing Navy pipelines that traverse the Zone, explaining what their use is, has been, and is to be.

ANSWER: Effective 1 October 1977, the Navy pipelines will be secured for approximately two years to accommodate the widening and dredging project at the Gamboa Crossing by the Panama Canal Company. Historically, the Transisthmian Pipeline system has been required to support current Navy, Air Force, Army, and Panama Canal co-operations in the Canal Zone by providing the capability to receive cargoes at the Atlantic terminal and pumping them to the Pacific terminal for use or further distribution.

QUESTION 13: Is there any relation to this activity and proposed Panamanian Government oil pipelines, or storage facilities for off-loading Alaskan oil for transshipment through the canal, etc?

ANSWER: No. The US has agreed to consider the shared use with the Government of Panama of the pipeline to meet internal Panamanian POL requirements. However, no commitments have been made.

QUESTION 14: Please supply tonnage and percentage of total figures on US supplies shipped via the canal to combat and rear support areas in the Pacific during

a. World War II
b. Korea
c. Vietnam

ANSWER: The information provided below is all that is available at this time. However, research is continuing. If additional information is obtained, it will be provided to the subcommittee later.

Korea. In FY 1953, 22% of Army tonnage destined for Korea was shipped from East or Gulf Coast ports through the canal.

Vietnam. Data available is for FYs 67-69

US GOVERNMENT CARGO SUPPORT FOR VIETNAM 1/

	FY 1967	FY 1968	FY 1969	AVG
Via Panama Canal	5.1	7.7	6.1	
Total Support Provided	12.7	13.0	12.9	
Panama Canal's % of Total	40%	69%	47%	49%

1/ Millions of Long Tons (Approximations provided by Military Sealift Command and Military Airlift Command.)

Additionally, 28% of the POL destined for the Pacific transited the canal in 1968.

QUESTION 15: State why full scale expenditures for Diego Garcia base in the Indian Ocean are considered so important while the Canal Zone is considered of such lesser importance that the United States can afford to give it to Panama.

ANSWER: US interest from a military standpoint is in the use of the canal, not its ownership. The canal facility, as opposed to Diego Garcia, is well established and the new treaty should insure the canal's use to the United States. The US is also interested in the limited use of Diego Garcia (specified US rights are granted by the UK) in responding to contingencies. US expenditures on Diego Garcia are to develop facilities necessary to support US use of the island in contingencies.

QUESTION 16: Explain why, or why not, once Alaskan oil begins to transit the canal to the United States on routes watched by Soviet subs based in Cuba, Panama Canal and Caribbean oil route situation will be comparable to Suez Canal, and Indian Ocean oil route situation, also watched by Soviet submarines operating out of Somolia.

ANSWER: The similarity between the two routes is that they both must pass through canals that are capable of being interdicted by the Soviets. The difference is that US access to the Panama Canal would be enhanced by a new treaty arrangement with Panama.

QUESTION 17: Since industry supplies the equipment for the defense triad you say is vital, would you say these corporations--or any of their competitors--are vital:

US Steel
General Dynamics
General Motors
General Electric
Boeing Aircraft Co.

What other companies might you say are vital?

ANSWER: Since alternatives to any one of the defense contractors exist, they should not be considered vital individually. However, the entire US aircraft or steel industry might be considered vital.

TO: PANAMA CANAL SUBCOMMITTEE AUGUST 10, 1977

FROM: COLONEL JOHN P. SHEFFEY (U. S. ARMY, RET.)

SUBJECT: QUESTIONS FOR THE RECORD

A. Chairman Metcalfe's Questions:

1. In your prepared statement you make the comment: "The only feasible course for the United States to follow is one that maintains the United State's right to protect its national security interest in the Canal but otherwise meets Panamanian aspirations."

Do you believe that we can accomplish this with guaranteed access or is operational control of the Canal necessary?

ANSWER: If the United States retains unambiguous rights to insure the continued availability of the Canal to the United States in any circumstances whatever, and treaty authority to maintain sufficient troops on site to enforce those rights, control of the Canal by the U. S. is not necessary.

2. You state that the United States should base its policy actions with respect to the Canal on what we believe is fair, not what our foreign critics believe. This is not suggesting that the U. S. disregard the beliefs of those countries, such as Panama, which are involved with important U. S. interests, is it?

ANSWER: The U. S. should meet all Panamanian aspirations and international criticisms to the maximum extent that does not hazard U. S. interests, particularly U. S. national security interests. Determination of those interests should be made unilaterally by the U. S., and the treaty rights to protect them maintained regardless of Panamanian objections and foreign criticism. I have already outlined what I believe those interests to be.

B. Mr. Dornan's Questions:

PREFACE: Mr. Dornan's questions appear to be seeking behind-the-scenes villains responsible for giving away the Panama Canal. I am positive there are none. In the years since 1962 when President Kennedy made the decision eventually

to negotiate a new treaty with Panama, the U. S. position has progressively softened in the face of repeated Panamanian refusals to agree to the terms offered. The Secretary of Defense, Service Secretaries, Joint Chiefs of Staff, and Congressional leaders who originally demanded 100 years of continued U. S. control and defense of an Isthmian Canal were replaced by those who would accept 50 years, and now by those who will accept 20 years. The transition has been from leaders who believed that the U. S. should be willing to accept foreign criticism and even bloodshed in Panama to retain control and defense of the Canal for 50 years or more to new U. S. leaders who do not believe this tenure is worth the political and military costs. All have been intelligent and patriotic men, and I believe that all have acted in what they sincerely believed to be our country's interests.

1. In all the time you served with the negotiators, or elsewhere with State or Defense, did the question of selling - rather than giving - the Canal Zone and/or the Panama Canal to Panama ever even come up?

ANSWER: Yes.

2. If it did, how serious was the proposal, and how was it killed?

ANSWER: Not very serious. No one could envision Panama agreeing to payment or being financially capable of doing so.

3. Why, if disposing of the assets is necessary, should we not sell the territory and waterway and try to retrieve some of the U. S. taxpayers' $7 billion investment there?

ANSWER: There is no politically feasible or financially practicable way of doing so, in my opinion. The U. S. never attempted to have the Canal repay its construction costs to the U. S. Treasury in its 63 years of ownership. The Merchant Marine Committee drafted the law that actually forbade the Canal Co. to do so when the company was created in 1951. The objective, I believe, was to keep the tolls low.

4. What do you think would be a fair price to ask?

ANSWER: There is no sensible answer to this question. You can readily

obtain original costs, depreciated costs, replacement costs, or current investment value. None are meaningful. The U. S. cannot legally sell it to a third party, and Panama will not and, for all practical purposes, cannot pay for it.

5. This question is not a repeat; there is a different emphasis: You said, "There have been great political pressures on the Joint Chiefs of Staff to downplay the military importance of the Canal and they are not able to defy Presidential policy." My question was, "What policy are you talking about?" and you answered very well, indeed.

6. Now, tell us, what were the political pressures you spoke of, and why do you think they were brought to bear against and despite the considered judgment of the Joint Chiefs? What were the origins of the Treaty concepts historically and chronologically? Please give details about the 1971 Treaty you mentioned.

ANSWER: The pressures were those of perception and persuasion. With each passing year since negotiations started in 1964, the continued failure to reach agreement with Panama brought more intensive efforts by the U. S. treaty negotiators and the Department of State to have the Department of Defense to agree to more generous treaty terms for Panama -- shorter duration of continued U. S. control, relinquishment of more zone land and facilities, reduction of military bases, etc. Each of the three negotiations -- for the 1967 treaties, the 1971 treaty and the current treaties -- has been carried out under National Security Council guidance approved by the President. With each failure to reach agreement in 1967 and in 1971, the Joint Chiefs of Staff were persuaded to agree to reduction in the scope of U. S. treaty objectives. This spread over 13 years and involved three or four changes of the Joint Chiefs and the members of the NSC. Each gave a little more than his predecessor. There was no single large movement until Kissinger became Secretary of State. He was convinced that the U. S. should set an example of fairness and generosity in its treatment of Panama, and his ability to convince the President and the Secretary of Defense of his views was considerably greater than that of his predecessors. The Defense-oriented treaty team under Ambassador Robert Anderson, which had been responsible directly to the President rather than

to the Secretary of State, was replaced by a Department of State oriented negotiating team under Ambassador Ellsworth Bunker, responsible to the Secretary of State rather than directly to the President. Prior to that time, the President and the Chief Negotiator had been willing to accept failure of the negotiations rather than make further concessions to Panama. Negotiations were actually suspended for all practical purposes throughout 1972 and most of 1973. With the change of negotiators, the effort within the U. S. government to accommodate to Panama's aspirations was greatly increased. The NSC and the President were prevailed upon to approve less demanding guidance to the negotiators for the issues in which Panama had rejected earlier U. S. proposals. As a result, agreement is apparently imminent. I do not know the current terms, but I have been informed by the Chairman of the Joint Chiefs of Staff and the Assistant Secretary of Defense that the JCS and the DoD consider them satisfactory.

The 1971 draft treaty was no more than a U. S. proposal that the Panamanian negotiators agreed to take to Torrijos as the best terms they could get. It was rejected and I assume remains a classified document. However, it became public knowledge at the time that it called for 50 more years of U. S. control and defense of the present Canal.

7. Did State Department provide the initial or original concepts and pressures to support the successive treaty proposals, or did U. S. Big Business -- specify if banking or otherwise -- originate the concepts and the pressures, and the State Department, in effect, did their bidding, or did some other forces -- apart from State and Big U. S. Business -- originate the concepts and pressures?

ANSWER: To the best of my knowledge, there have been no "Big Business" or international bank pressures to relinquish U. S. control of the Canal. I believe that almost all "big business" interests in Panama support continued U. S. control of the Canal and continued U. S. presence on the Isthmus because of the economic advantages and political stability the U. S. presence brings. I repeat: The pressures to meet Panama's aspirations came from patriotic U. S. leaders in the Department of State, the White House, and the liberal elements of our society who

sincerely believe that a generous treaty with Panama and early U. S. withdrawal from the Isthmus best serves U. S. interests -- there are no villains involved.

8. What is the role of Big Business vis-a-vis State Department and other forces today?

ANSWER: I don't know.

9. What part does each play in promoting the Kissinger-Tack based treaty?

ANSWER: I don't know. I am not aware of any Big Business role in the Panama treaty.

10. Precisely how does Big Business expect to benefit from the new treaty?

ANSWER: I don't know. There will, of course, be new business opportunities in the Zone as U. S. government commerical activities are replaced by Panamanian government or private business. Bunkering, stevedoring, retail operations, ship repair, etc., will be multi-million dollar businesses. I expect the Panamanian government, not the U. S. government, to be the one to grant these new business concessions when they eventually are taken over by private enterprise.

11. Specify how for the separate categories of Big Business you know of.

ANSWER: See answer to 10. above.

12. Do you think Big Business is deceiving itself?

ANSWER: I don't know.

13. How?

ANSWER: I don't know.

14. You say (page 203 of the transcript): "The problem has been throughout these negotiations that no single step in the study of the deterioration of our negotiating position has ever been vital. It is a piecemeal cutoff of a very important thing." You described our negotiators over the years as cutting the time for U. S. control down, from 100 to 50, then from 50 to 20 or 23 years. Detail chronologically what other aspects of control, operations, land, sovereignty, etc., the negotiators have given up, step by step over the years, which at one point had been considered important to hold on to.

15. Why was each of these dropped from the category of U. S. needs?

16. What if anything was considered a satisfactory substitute for each of them?

17. It is my understanding that your services were terminated because you maintained certain U. S. control or assets must be kept under any treaty. What specific control or assets did you feel should not be surrendered, but which your superiors were willing to give up, in the differences that led to your termination?

18. Please give any additional details you recall regarding the 1971 Treaty proposals that you mentioned.

19. You indicated Secretary Kissinger asked for the resignation of chief negotiator Ambassador Robert Anderson, who was replaced by Ambassador Bunker "with very specific instructions to get an agreement."

20. Of course, we know the 8-point Kissinger-Tack agreement soon followed. Was Anderson unwilling to go as far as Kissinger?

21. How far would he go?

22. From your experience and knowledge, had the 8 points ever been discussed in the State Department before Kissinger became Secretary?

23. Who proposed them?

24. When?

25. If by a Panamanian, who at State urged their acceptance?

26. When?

27. If before Kissinger, were they accepted or rejected by Secretary of State Rogers, Kissinger's predecessor?

28. Did President Nixon urge rejection or just acquiesce in any rejection before Kissinger became Secretary?

29. Did Nixon urge acceptance or just acquiesce in that acceptance after Kissinger's appointment?

30. If Nixon reversed himself, do you know why?

ANSWER: See answers to questions 5-6. These questions cannot be answered without access to classified records of some 10 years of negotiations -- and the answers would serve no useful purpose. Some questions ask me to report on the actions and opinions of others who are themselves available to the committee.

The 8-point Kissinger-Tack agreement was generated by Ambassador Bunker's team to start the new negotiations off on a favorable note. It was fully coordinated

with the Department of Defense and did represent the mutually agreed principles under which negotiations had already been conducted by Ambassador Anderson.

My services as special advisor to the treaty negotiator were terminated, I believe, because I did not agree with several of the changes in U. S. negotiating objectives advocated by the new negotiating team. In general terms, my unacceptable advice was to risk failure of the negotiations rather than agree to terms demanded by Panama that were very likely to be rejected by the Senate. Such a rejection I believed certain to lead to bloodshed in Panama, and I was convinced that the very generous terms offered in 1971 represented the maximum concessions of U. S. rights and property that the U. S. should make as well as the maximum that would be acceptable to the Congress. Further, I believed that firmness on the U. S. part in adherence to the 1971 offer would eventually lead to agreement, and U. S. firmness in protection of its own interests would be more respected in Latin America than further concessions. I was and remain particularly concerned that: (1) insufficient extra-territorial rights (immunities from Panamanian jurisdiction) are being retained to protect U. S. Canal employees from arbitrary but completely legal interference with the performance of their duties by the Government of Panama and (2) U. S. unilateral rights to insure the continued availability of the Canal in any future circumstances whatever will not be clearly established in the new treaties. As I have previously stated, I believe the latter, including continued presence of U. S. defense forces, is absolutely essential to the acceptability of the new treaties.

31. Mr. Cox mentioned that he thinks Castro might at some time use Guantanamo for its hostage value. Should we give the Canal to Panama, could not some Panamanian terrorist group, or some non-terrorist political party in opposition to Torrijos -- or in opposition to some successor of his -- hold the Canal hostage against the Panamanian leadership in the same way Mr. Cox indicated Castro may hold Guantanamo hostage, or, in fact, in much the same way Torrijos himself is presently holding the Canal hostage against us by his warnings of sabotage and his threats to lead Panamanians down "another Ho Chi Minh Trail" to take over the Zone?

ANSWER: If the recommended defense rights are in the new treaties, this is no threat.

32. If so, then is it not true that by giving the Canal to Panama we in no way would be providing for a canal that is any more "open, efficient, neutral and secure" than it is right now under our own total control, even though the present nationalistic aspect would have disappeared?

ANSWER: This is a matter of judgement. No one knows for sure.

33. I question whether Panama would gain or lose economically by gaining total control of the Canal Zone and Canal. How much net annual income would Panama be able to derive from the Canal with the maximum tolls increase possible without driving away traffic?

34. From other services?

35. How would the total of 33 and 34 compare with present Panama income from direct and indirect Canal and Zone activities including spending by U. S. military and other personnel that would be absent under total Panamanian control of the Zone with no on site U. S. bases remaining?

ANSWER: All studies conducted for the Canal Study Commission and the Panama Canal Company with which I am familiar concluded that the maxim/potential revenues from the Canal would be 40% to 50% greater than the levels at the time the studies were made. Allowing for inflation and the increases already made in the Canal tolls, I estimate that the maximum potential would still be under $200 million/year. Reaching this level would involve some harmful impacts on Canal commerce and on the economies of the Pacific Coast countries of Latin America.

In 1976 the foreign exchange revenues for Panama from the Canal Zone are estimated to have totalled $235 million. I think it reasonably certain that Panama could not make as much from the Canal, were the U. S. to depart from the Zone entirely, as she now makes from U. S. operations in the Zone.

Panama is aware of this, but still prefers early U. S. departure. This economic argument has no value whatever in treaty negotiations.

36. A Senate subcommittee took testimony a few days ago from Dr. Donald Dozer concerning Milton Eisenhower's book, The Wine Is Bitter: "He went on to propose

a change in the accounting procedure of the Panama Canal Company in order to amortize the costs of digging and constructing the Canal so that the U. S., after thus recovering costs by a bookkeeping device, might retrocede the Zone and the Canal to Panama free of financial liabilities." In hearings our Subcommittee conducted on the Panama Canal Company finances last year, Congressman Gene Snyder unsuccessfully sought to clearly ascertain whether or not the State Department was behind the actual depreciation -- of the type Milton Eisenhower evidently recommended -- undertaken by the Canal Company despite lack of legislative authority from this Committee. Can you provide any information as to if, and when, Dr. Eisenhower's recommendations on depreciation may have become part and parcel of the State Department's concepts for a new treaty and actions in support of such a treaty?

ANSWER: The Board of Directors of the Canal Company made the decision to depreciate the canal channel many years after the President had decided to agree to eventual relinquishment of the Canal to Panama. I believe it was entirely a business management decision for the purpose of increasing cash flow and establishing the legal basis for badly needed toll increases. I recall some objections to it voiced in the State Department on the grounds that bookkeeping profits were thereby reduced -- making the potential for payments to Panama appear lower. I have never heard of any connection between the views attributed to Dr. Eisenhower and the depreciation decision nor of any correlation of that decision with the treaty negotiations.

Dr. Eisenhower has had little or no role in the treaty negotiations. He has supported the basic concepts of Ambassador Anderson's negotiations, but he has long opposed giving the Canal and Zone to Panama without compensation.

37. In your experience, did you detect any pattern as to what Panamanians or group of Panamanians have traditionally seemed the most intransigent in the continuing negotiations over the years?

ANSWER: Almost all Panamanians are united in their desire to gain Panamanian control of the Canal and Canal Zone. The elite propertied class and the rising middle class have appeared willing to compromise their nationalistic goals with

the economic advantages and stability associated with a continued U. S. presence, but none would accept continuation of the 1903 Treaty. Ambitious political leaders of all stripes are forced to advocate extremely nationalistic Canal policies to muster the support of the intellectuals, the lower economic classes, the students, and the relatively small leftist elements. This latter combination is probably the major source of Panamanian intransigence in treaty negotiations, but large elements of the upper classes constitute a close second.

38. What Panamanian business interests have seemed most anxious to get a treaty ceding the Zone to Panama?

39. Specifically, how about government officials with business interests?

40. How did they or do they expect to utilize the land in the Zone for business development and profit?

ANSWER: I have no specific information on which to base answers to these questions.

As a final statement, I repeat from my July 26 testimony the following:

I believe that the U. S. should agree to give up much of the Canal Zone and eventually turn operational control of the Canal over to Panama, but we should insist on permanent, irrevocable, and unambiguous rights to insure the continued operation and defense of the Canal in any circumstances whatever. Panama objects to this, but it is the price the U. S. should demand for the enormous gift of the Canal and most of the Zone. A great power has to bear the burden of criticism that protection of its interests induces. In spite of the sound and fury, the world accepts this reality. I do not believe that anything we do (to protect U. S. interests) in Panama/will have any real lasting effect on our interests elsewhere. Our actions should be based on what we believe is fair to Panama and important to our future security -- not on what our foreign critics believe. Our defense interests in the Canal are critical and enduring. The goodwill that might be generated by relinquishing them would be ephemeral.

Responses by Robert G. Cox.

QUESTIONS BY CHAIRMAN METCALFE

1. Mr. Metcalfe: Do you believe the Panama Canal was a major factor in the U.S. response to the Cuban missile crisis?

Mr. Cox: No. The contribution of the Panama Canal to our response in the Cuba missile crisis has been overestimated, Mr. Chairman.

The quarantine of Cuba ordered by President Kennedy in October of 1962 was implemented by Task Force 136 led by the Commander of the Second Fleet. The Force was composed of the heavy cruiser Newport News, the carrier Canberra, the anti-submarine carrier Essex, several squadrons of destroyers, and a variety of support ships. The Second Fleet is the "Home Fleet" on the United States East Coast.

At the same time, Task Force 135 led by the Commander of Carrier Division Two was standing by to relieve Guantanamo. That Force, also drawn from the Second Fleet, included the attack carrier Enterprise with support available from another attack carrier, the Independence, and other ships of Carrier Division Six. More than 200 planes were aboard the Enterprise and the Independence.

All Atlantic Fleet mobile logistic forces were loaded and ordered to sea in support of the deployed fleet forces. The response included 90 ships of the Cruiser-Destroyer Force, Atlantic Fleet, and eight aircraft carriers with over 25,000 men aboard.

A ready Marine Battalion Landing Team was embarked in ships of PhibRon 8 at Norfolk and landed in Guantanamo. Another Marine contingent was airlifted from California to Guantanamo Bay by MATS, and a Marine infantry battalion was flown from Camp Lejeune, North Carolina, to Guantanamo. Meanwhile, battalion landing teams from Lejeune were ordered to load-out in amphibious lift of PhibRons 6 and 8 at Norfolk.

There were a total of 85,000 personnel afloat in 190 ships. The Marine build-up afloat was completed by October 28.

On November 5 and 6, twenty-two amphibious ships of the Pacific Fleet transited the Panama Canal carrying an average of 500 Marines each from the Fifth Marine Expeditionary Brigade. But the crisis had peaked during October. Indeed, by November 7 the United States and the Soviet Union had formally agreed that U.S. Navy ships would monitor Soviet vessels at sea and count the missiles already being withdrawn from Cuba. The 22 Pacific Fleet Amphibious Ships did not arrive on station until two days later, November 9.

Mr. Chairman, some interesting military folklore has grown up around the Canal's assumed involvement in the "eyeball to eyeball confrontation" with Russia. Even the four retired Chiefs of Naval Operations, who wrote to President Carter in June, assert that during the Cuba missile crisis "the value of the Canal was forcefully emphasized by emergency transits of our naval units and massive logistical support for the Armed Forces." I don't know where this notion originated, but it did not come from analysis of the forces involved and the pattern of their deployment and support.

Mr. Metcalfe: How would you view a sea-level canal as a military asset in comparison with the lock canal?

Mr. Cox: I don't believe construction of a sea-level canal can be justified today on either commercial or military grounds, primarily because of the multi-billion dollar costs involved. However, such a waterway would be, on the whole, easier to defend, more readily cleared of sunken or damaged ships, and less vulnerable to some of the 13 attack options I cited earlier.

But a sea-level canal across Panama would not be a simple ditch. If it were excavated by conventional

means rather than by nuclear detonation, it would probably have to be equipped with tidal gates. These would be rolling structures that could be positioned laterally across the canal channel, reducing tidal currents to a maximum of two knots to ease the passage of commercial vessels. If one of these tidal gates were sabotaged or otherwise immobilized during use, its removal would require an effort similar to that involved in removing a sunken ship or collapsed bridge, but less than the effort that would be needed to repair extensively damaged locks and restore the present Canal to full use.

A nuclear-constructed sea-level canal would be the least vulnerable, but it would generate special controversies and unique engineering problems.

3. Mr. Metcalfe: Can we take your testimony to be in substantial disagreement with the four former Chiefs of Naval Operations who wrote to the President in June?

Mr. Cox: Yes, very substantial disagreement.

I believe these gentlemen have a supportable case. I would summarize it this way: The Panama Canal

is a well demonstrated asset to our defense forces; it could have both logistical and tactical utility in future military engagements for which we should be prepared.

However, when the admirals tell the President that the Canal is "absolutely essential for free world security," they overstate their case.

Can it be that we must rely, for our strategic defense, on an installation that is stationary, exposed, fragile, unfortified, and vulnerable to a wide variety of attack options? I doubt that our power position in the world is that precarious.

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QUESTIONS BY MR. DORNAN

1. Mr. Dornan: Colonel Sheffey testified: "The strategic role of the Canal is more important today than it ever has been in the past. Our worldwide commitments are greater, potential trouble spots are more numerous, and our military resources are inadequate for many contingencies even with the Canal, much less without it."

Is it correct that you differ with the first of those sentences?

Mr. Cox: Yes.

2. Mr. Donan: Do you agree with the first two phrases of the second sentence?

Mr. Cox: No. Our international military commitments were greater during the 1950s and 1960s than they are today. During those decades we had commitments in Vietnam, Laos, and Cambodia which, in fact, ultimately resulted in enormous drainage of the resources of our nation and the blood of our citizens. We have no involvement with those nations today and have acquired no new commitments of comparable magnitude which would offset the loss of those prior relationships.

In addition, the United States is encouraging other countries to assume greater responsibility for their own defense than they were willing and able to do in the 1950s and 1960s. Korea and all of our NATO allies are cases in point. Our self-image has changed accordingly: we no longer play the role of world policeman, as our recent stance in Angola demonstrated.

In my judgment, our international military commitments are more believable to friends and adversaries alike, and more susceptable of fulfillment, today than they have been at any time since the early 1950s. But they are not, in any quantitative or qualitative sense, "greater."

With regard to potential trouble spots, we may have a definitional problem. I suppose the Canal Zone was, by anyone's definition, a potential trouble spot when I was in Panama in the late 1950s and it has been ever since. But certainly our withdrawal from Vietnam, Laos, and Cambodia reduces the number of actual trouble spots by three. Our refusal to allow our armed forces to be drawn into Angola makes it four. I would say trouble spots, actual and potential, are becoming less numerous as Americans become more willing to turn their attention to domestic challenges and away from those foreign entanglements of dubious necessity and advantage.

We should be more specific about Latin America in this context. While we can hypothesize the possibility of a Vietnam-type war in Latin America with American intervention under the Monroe Doctrine, the probability that the Canal would be a vital factor in such an occurrence is negligible for two reasons.

First, the Monroe Doctrine is directed against establishment of European colonies in this Hemisphere. Europe, with the possible exception of Russia, doesn't try to colonize lesser developed countries anymore. Even the Soviet quasi-colonial influence in Cuba is diminishing and the costs of that venture to Russia have probably exeeded the benefits. So, while the Monroe Doctrine is fully effective in 1977, it isn't as relevant as it once was.

Second, in this Hemisphere U.S. Armed Forces have never been used for intervention in South America, only in Central America, Mexico, and the Caribbean basin. And we have become demonstrably less inclinded toward new armed intervention since our Dominican incursion of 1965 and our later withdrawal from IndoChina. The Canal, in any case would be of little use in any such effort unless the action were on the Pacific coast of South America -- the least likely possibility, if history and geography are any guide. Since we cannot plan and prepare for every

imaginable development, this would be one contingency to which we could prudently assign a low priority in favor of more likely military requirements elsewhere.

3. Mr. Dornan: Do you agree that our military resources are inadequate for many contingencies?

Mr. Cox: Yes. It is in the nature of military resources that they are usually inadequate for many contingencies.

4. Mr. Dornan: If the answer to question 1 is yes, and if the answer to question 2 is yes, specifically why do you not think Colonel Sheffey's first sentence is correct?

Mr. Cox: My answer to your second question is no. However, I do not believe the Canal's strategic role is more important today, because I do not believe it has a foreseeable strategic role today. It is so vulnerabile to so many varities of attack by any determined and resourceful enemy as to be virtually indefensible. There is no such thing as an indefensible strategic asset.

Those who envision a strategic role for the Canal sometimes create an image of warships in large numbers, plus supply vessels, moving through it during a global crisis. The

target value of the Canal, normally not very great, would be suddenly enhanced by the presence of naval units and critical supply ships in its locks, channels, and approaches. The prospect would evoke memories of Pearl Harbor, were it not for the fact that no competent commander would permit such a concentration of forces with constricted maneuverability.

5. Mr. Dornan: You mentioned that you think Castro might at some time use Guantanamo for its hostage value.

Should we give the Canal to Panama, could not some Panamanian terrorist group, or some non-terrorist political party in opposition to Torrijos -- or in opposition to some successor of his -- hold the Canal hostage against the Panamanian leadership in the same way you indicated Castro may hold Guantanamo hostage, or, in fact, in much the same way Torrijos himself is presently holding the Canal hostage against us by his warnings of sabotage and his threats to lead Panamanians down "another Ho Chi Minh Trail" to take over the Zone?

Mr. Cox: If, as you say, Gen. Torrijos is holding the Canal hostage today, his ability to hold it hostage would not be changed materially if he had outright possession of the Canal itself. What would be changed would be his,

or any Panamanian's, incentive to hold it hostage. The incentive to threaten the Canal today is the existence of a 500-square-mile American colonial enclave bisecting Panama. Without that political factor, Panamanians would be primarily influenced by an economic motivation: they would have more incentive to keep the Canal secure and efficient than we or anyone else would have. Closure of the Canal by Panamanians would be an act approaching national suicide, and they know it.

As you indicate, Congressman, this would not preclude some terrorist organization or irresponsible group from threatening the waterway. Indeed, they are not so precluded today. But if the Zone were not a political irritant, anyone who disturbed the Canal would incur the almost unaminous wrath of Panamanians. Meanwhile, we intend to retain our rights to defend the Canal, as best we can, against terrorists or anyone else.

6. Mr. Dornan: If so, then is it not true that by giving the Canal to Panama we in no way would be providing for a canal that is any more "open, efficient, neutral and secure" than it is right now under our own total control, even though the present nationalistic aspect would have disappeared?

Mr. Cox: In my view, the best insurance for the Panama Canal would be: to recognize Panama's natural interest in it, as that country's most valuable national resource; to evolve a bi-national partnership for its operation and defense, with eventual ownership in Panama; to renounce our exclusive jurisdiction in the Canal Zone; and to maintain U.S. rights to defend the Canal, with the necessary bases on site, as long as it remains an important tactical and logistical asset.

TO : WILLIAM D. ROGERS

FROM: RALPH H. METCALFE, CHAIRMAN
PANAMA CANAL SUBCOMMITTEE

SUBJ: QUESTIONS IN CONNECTION WITH VITAL INTEREST HEARINGS HELD JULY 25-27, 1977

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1. Some say that there is a possibility of outside influence on the government of Panama -- an influence which may seek in some way to control access to the Canal. Would you comment on that possibility especially in light of the comment contained in your prepared statement where you stress the economic dependence of other Latin American economies upon access to the Canal?

2. Mr. Rogers, allegations have been made that there are violations of human rights in Panama and as a result the U.S. should reassess the present treaty negotiations with Panama, perhaps even terminate the negotiations with the present government until the human rights questions is resolved -- or wait to conclude a treaty with another government. Would you comment on these charges and their relation to the treaty negotiations?

3. The question has been raised about the possible closure of the Panama Canal if this controversy is not settled by means of negotiations. If it is in Panama's economic interest to keep the Canal open, then why should we speculate that a breakdown in negotiations could lead to Canal closure?

4. Mr. Ferguson mentions the concept of rebus sic stanibus in his testimony. As a past president of the American Society for International Law, would you comment on this concept and its relationship to international relations today?

MINORITY QUESTIONS BY MR. DORNAN OF WILLIAM D. ROGERS

1. Col. Sheffey called Kissinger-Tack "getting agreement to a treaty at any price." He told me he got fired for holding firm for protecting some U.S. interests, at least, in a new treaty.

   Why was it necessary to give away the whole ball of wax, the whole Zone and Canal, when a new treaty making far lesser concessions would show our good faith--and most important--would have a chance of passing the Senate?

   Even people like Senator Hubert Humphrey who favor a new treaty have said this treaty lacks the votes in the Senate.

   Why did we decide to yield everything all at once?

   Who is really pushing us in this country to do this?

   Are they business interests?

   Or is it all centered in the State Department's worry about being embarrassed by the Canal issue as you seem to indicate throughout your testimony?

2. Re vital and interdependence:

   Are we vitally dependent on the help of any other single nation--or group of nations--for survival?

   On Panama's goodwill and friendship?

   On any other nation's goodwill?

   Is it not in their own best self interest to be allied with us because of our power, against a potential common foe?

3. You talked of Latin American countries' dependency on the Canal.

   Will not Ecuador be priced out of Eastern U.S. banana market when Torrijos raises tolls the maximum? He has promised 300% to 500% hikes. UN study claimshe could go up 700%, I understand. Even if he only doubles tolls that's double Ecuador's headaches.

   Will not Peru's copper suffer similarly?

4. If we fear Panamanian riots or sabotage, why don't we just demand Omar Torrijos live up to Article X of the 1936 Treaty?

5. On page 15 of your statement you mention threats to U.S. corporate interests. Please detail pressure on this and past Administrations--pressure felt by State Department--by big U.S. business to give away the Canal to protect their other interests in Panama and elsewhere?

   What corporations, and what persons led such pressures in the past?

   Who leads it now?

6. You say in your statement, "This treaty is at the center of our contemporary foreign relations."

   How will its solution resolve the SALT issue with USSR? or Human Rights--the freedom vs. slavery issue?

   Will it pull down the Berlin Wall? or change our relations with Angola's Marxist regime?

   The list of our international issues is endless. How will they be affected by the Canal's forfeiture to Panama?

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August 12, 1977

The Honorable Ralph H. Metcalfe
Chairman,
Panama Canal Subcommittee
The House of Representatives
Committee on Merchant Marine
and Fisheries
Room 1334 - Longworth House
Office Building
Washington, D. C. 20515

Dear Mr. Chairman:

Let me thank you once again for the opportunity to appear before the Committee on the Panama Canal Treaty.

Since the hearing, you have sent me a series of supplemental questions, which are attached hereto. My answers follow:

I. Mr. Metcalfe's Questions

My Answer to Question 1:

There is, in my view, no very serious risk that some "outside influence on the government of Panama could, in some way, control access to the Canal," at least not effectively, under the proposed new treaty relationship. I say that for several reasons.

-- In the first place, it is my understanding that under the new treaty Panama will be firmly committed to keep that Canal open to the peaceful commerce of all

nations. During our own stewardship of the Canal, we have been bound to do so by international law. We have never closed the Canal, even to Soviet vessels at the height of the Cold War, or to Cuban vessels more recently. We and Panama will continue to be obliged to keep it open, after the new treaty is signed and ratified by the Senate, during the transition period. And Panama will be bound to do so by firm international legal obligations at the end of the Treaty period. If it fails to do so, it will be in breach of its commitment. We and others then have a number of possible remedies available to us.

-- You rightly suggest that a denial of access to the Canal would have a serious impact on the interests of a number of countries in addition to our own. The nations of Latin America to which I referred in my prepared statement would be much more seriously affected than we if some "outside influence" were indeed to persuade Panama to cut them off from the Canal. However, in this respect, the Panama Canal is not very different from a number of other strategic bottlenecks on the sea lanes of the world -- canals, such as Suez, and straits, such as Molucca, Aden and the waters around Florida. Denial of access to any of these vital sea passages would damage the interests of many nations, and would constitute a profound violation of international law, justifying serious response by those affected. Suez, which is a part of a special conflict case, aside, those bottlenecks have not been very often closed in modern history, except as incident to wider hostilities. By the same token, it is hard for me to conceive that there could be a denial of access to any major user of this maritime bottleneck in circumstances short of a conflict involving far more than Panama. In such circumstances, the "outside influence" that wanted to close the Canal to us, or to any other nation, could do so quite easily, whether or not Panama were responsible for its administration.

-- In all events, I should suppose that Panama -- and any "outside influence" which might seek to persuade Panama -- would be well aware that we would react massively to any effort to deny access to the Canal to our commerce, or to the peaceful commerce of our allies and friends.

My Answer to Question 2:

I am persuaded, as I have said publicly on many occasions, that human rights must be a fundamental objective of our Latin American policy. Our attempts to improve human rights behavior, however, must not be paternalistic. However decent and just our society may be today, it has not always, or even recently, been so.

As I testified to the International Organizations Subcommittee of the House Foreign Affairs Committee last week, our first line of defense on human rights should be through multinational organizations. It is, after all, an international standard we are attempting to enforce. That standard is incorporated in the Universal Declaration on the Human Rights and the Inter-American Convention. Human rights is not something we should seek to impose unilaterally.

To my knowledge, there is no evidence that the Inter-American community in general, or the Inter-American Human Rights Commission in particular, thinks that Panama has been a major human rights offender in recent times. Justice is imperfect and sometimes arbitrary there. It is here, too. But Panama, by objective standards, ranks rather high in the order of Latin American nations in human rights terms.

The Presidents and senior officials of the predominant democratic nations of Latin America -- Colombia, Costa Rica, Mexico, Venezuela and Jamaica, met on August 7 in Caracas with General Torrijos. They discussed with him how best to advance the treaty effort. These are the nations in Latin America most outspoken in support of a new treaty. They are, at the same time, the nations in the Hemisphere who are also most concerned with human rights, and with whom we must ally ourselves if we hope to improve human rights behavior in the Americas. The Latin American democracies are certainly not of the view that we would advance the cause of human rights by turning down a new Panama treaty. To the contrary, they want the treaty badly, and are doing all they can to persuade the United States to accept it. I agree.

My Answer to Question 3:

Closure is possible. But this is not the reason we should have a new treaty.

-- It is distinctly in Panama's national interest to keep the Canal open. But governments are not always able to persuade their citizens. Example: We have been committed to keeping the Canal open. Yet it was locked up tight for several days by the recent pilots strike. This closure had vast consequences for the maritime commerce of the world. If U.S. pilots can decide to close the Canal for their own purposes, and over the most insistent efforts of their government, one must assume that there are a few individuals in Panama who might, under circumstances they regarded as personally intolerable, also try to close the Canal.

It is easy to do. The Canal is one of the world's most vulnerable utilities.

-- Closure, in other words, is a possibility, whatever may be the interest of the Bahamanian government.

-- I repeat, however, that this is not the reason we are negotiating. We are negotiating because it is right, not because what we fear would happen if we do not.

My Answer to Question 4:

Rebus sic stantibus is a significant, but controversial, doctrine in contemporary international legal thinking. It has been recognized by the American Law Institute, in its Restatement 2d of the Foreign Relations Law of the United States, Section 153. The 1969 Vienna Convention on the Law of Treaties, Article 62, adopted it. The doctrine holds that international agreements, at least those that purport to be perpetual like the 1903 Panama Treaty, are made within the context of the particular circumstances of the time. If those circumstances change fundamentally, the parties may be excused of performance.

Rebus sic stantibus has been invoked by parties to treaties in a variety of situations. The United States applied the doctrine in 1941, when it suspended the International Loan Line Convention of 1930. U.S.T.S. 858; 47 Stat. 2228. Reasoning that peace was a basic condition upon which the Convention had been founded, the then Attorney General found that belligerency was a fundamental change in the circumstances.

The notion of changed circumstances is becoming an important instrument for those thirdworld spokesmen who seek to reform the international system in ways which seem to them more equitable to the developing nations. It is also used by those who believe that the principles which underlie the existing system of international law are the product of an era in which Europe and the United States could impose their will, and did so for selfish reasons.

The doctrine, in short, is distinctly relevant to the current debate over the new international economic order.

Many commentators in the West think that it is being pushed too far. They give equal emphasis to that other hoary Latinism of international law, pacta sunt servanda -- agreements must be observed.

I am inclined to this latter view myself. For I believe that it serves world order better if change in existing agreements comes about through new agreements, rather than by unilateral denunciation.

I admit that Panama would probably have a respectable rebus sic stantibus argument before the World Court or world public opinion, if it had to make the case. The original Panama treaty was conceived in chicanery and born of jingoism. In 1903, Panama was an undeveloped region, which had just broken away from Colombia. Things have changed. Today Panama is a nation. It is capable of assuming responsibility over time for the orderly maintenance of the Canal and the Zone. In my view, the political instability, medical danger and social primitiveness of the Isthmus were fundamental conditions underlying the 1903 Treaty, just as stability was at the root of the Loan Line Convention. All have changed. So, I think, Panama, if it could find the right forum, would have a fair chance of persuading that forum to excuse it from further performance.

But the results in the real world of such an application of the rebus sic stantibus doctrine would be chaotic, if not catastrophic. And, in all events, a legal contest, even one as intellectually fascinating as this, is no way to settle such an issue. As I say, if parties to a treaty want to change it, they should make every effort to negotiate the change, not force it.

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That is what we and Panama, with extraordinary patience, have been doing. We are on the verge of success. Thankfully, Panama will probably not have to plead rebus sic stantibus -- though it probably could.

II. Mr. Dornan's Questions

My Answer to Question 1:

Tinkering with the existing treaty will not serve. The 1903 Treaty was the product of an earlier age. It is widely regarded as unjust. What is needed is a new arrangement, one which protects the interest of both parties, but which puts colonialism and paternalism behind us and is consistent with contemporary international realities. Such a treaty will provide the best assurance that we will achieve our single significant objective in Panama -- to keep the Canal open and functioning efficiently.

This objective is widely understood. It has the support of those who depend on the Canal, including a major proportion of the international business community in this country, as well as those who know something about our relationships with Latin America.

My Answer to Question 2:

The notion that we can remake the world in our image, that our power is infinite, that we can ignore the good will of our allies or that the other non-Communist nations are our submissive satellites whose cooperation we can insure merely by guaranteeing their security, is a view of the world remarkably out-of-date.

The world is interdependent; we depend more and more on the world. In terms of economics, we require foreign petroleum for half of our gasoline. We import considerable quantities of other raw materials. Our exports create millions of jobs.

In terms of security, we share common interests with friends and allies everywhere. The world would be a far more hostile place if we had to depend entirely on our own strength -- if, that is, we tried again to withdraw and become a fortress sufficient unto ourselves.

It is surely in the interests of other nations to maintain their friendship with us. It is also in our national interest to nurture their understanding and cooperation. This is why our foreign policy must take the national interests of others into account, and search for solutions which meet the needs of others as well as our own.

My Answer to Question 3:

It is interesting that some treaty opponents -- for example, Mr. Charles Maechling writing in The New York Times of August 8 -- claim that Panama will offer "cut-rate" tolls to its Latin American neighbors. Other treaty opponents argue the opposite. They raise the spectre that Panama will increase tolls.

Panama can hardly do both. Each, in my view, is a red herring.

The economics of the Panama Canal are identical, whether the Canal is managed by employees of the U.S. Department of the Army, or by employees of Panama. There is a ceiling to tolls. Beyond that ceiling, traffic is diverted to other means of transport. The law of diminishing returns applies to all.

The question implies that a new treaty will threaten Equador, Peru and other Latin American countries which use the Canal. I only note that Equador and Peru, like their Latin American colleagues, favor a new treaty.

My Answer to Question 4:

The problem is not what the Government wants. The Government of Panama has no interest in seeing the Canal closed down. The Canal is far and away the most valuable asset in the country. But what the Government may want is not always identical with what some individuals may want. Our own pilots closed the Canal up quite effectively last year, despite the urgings of their Government.

My Answer to Question 5:

To my knowledge, there has been no pressure on the State Department by U.S. business to "give away" the Canal.

My testimony addressed the future. I tried to say that there is a distinct possibility that if we fail to solve the Panama issue, and if we instead continue to insist on treaty rights laid down three quarters of a century ago, we will pay a price for our intransigence.

Part of that price will be an increasingly hostile atmosphere for our trade and investment interests in Latin America and elsewhere.

I also tried to make clear, however, that I do not advocate a mutually-satisfactory new treaty because I fear these consequences. I do so because I am persuaded it is the right and just result -- a result which will best protect our interest in access to the Canal and which, in a larger sense, will most enhance our relationships with other nations throughout the world, and our prospects for effectively leading the effort to find solutions to the issues of interdependence facing the globe.

My Answer to Question 6:

The treaty is at the center of our contemporary foreign relations because it is a perfect example of the interdependence of the modern world. It is also an acid test of our capacity to lead the search for solutions to such problems.

-- We are only one of a number of nations which use the Canal. Others depend on it far more than we. The United States is in Panama, not as a demonstration of its own special virtues and power, but as trustee for international commerce everywhere.

It is difficult for many people to understand this. Critics attack the new treaty because they saw it somehow diminishes the self-respect and honor of the United States. In my view, much more is at issue: the new treaty relationship affects the interests of all the nations of the world.

Panama is a measure of the capacity of the U.S. to work for cooperative solutions to such multilateral problems. Whether the world can solve these world problems -- the environment, disarmament, law of the sea, food, oil, commodities -- depends on us. We are the strongest and richest nation in the world. No solution is possible without us. It is for this reason that Panama is at the center of our international relations today. The world is watching the Panama debate here to see what kind of nation we are. In this post-Vietnam era, it has become the measure of our greatness and our maturity -- whether in short, we are worthy of our central role in the search for solutions to global problems which can accommodate the interests of all nations, large and small.

Sincerely,

William D. Rogers

Enclosure

QUESTIONS BY MR. DORNAN OF HENRY GEYELIN

1. After the U.S. veto of the 1973 U.N. resolution supporting Panama's demands--- did U.S. business suffer anywhere in the world? What specific impact did U.S. business feel after that veto?

a. in Panama?
b. in Latin America?
c. world-wide?

ANSWER: The U.S. has exercised veto power in the United Nations on several occasions. These are not matters that either attract or deserve world public opinion and, therefore, have usually not generated an international uproar. We do not feel that the current debate over the Panama Canal can be equated to a simple veto in the United Nations. It is a much more important matter.

2. Was there any adverse impact in those same categories after our 1965 armed intervention in the Dominican Republic?

ANSWER: Yes. In Argentina, for example, a chain of U.S.-owned supermarkets was bombed. However, I would not like to dwell, at this time, on specific instances of violence against U.S. business interests in the hemisphere due to any isolated case such as the 1965 incident in the Dominican Republic. It is our belief that the Panama Canal situation represents to Latin America a much more profound illustration of the United States' intentions in the hemisphere and that the outcome of the present treaty process is of much more importance to Latin American nations than any other individual matter we have had in common with the hemisphere in the past.

3. What is to stop Columbia in 1977 or 1978 from embarking on a global propaganda campaign calculated to embarrass the United States on its helping Panama to independence in 1903 in order to get our support in helping Columbia regain all of Panama? What would be your Council's position in such an eventuality?

ANSWER: We do not believe this is a logical or feasible possibility.

Ferguson

QUESTIONS OF MR. METCALFE FOR MR. YALE FERGUSON

I. How do you think the eight nations you refer to ~~on page four of~~ in your prepared statement would respond to either a foreign presence or influence in Panama which these nations perceive as posing a threat to their continued access to the Canal?

The word "perceive" is a key one in this question. As I explained in my statement, I think the probability is high that the canal will continue to be operated on a nondiscriminatory basis even after the U.S. role in its operation diminishes and expires. Moreover, if there were to be a denial of access, it is very unlikely that the eight Latin American users would be [redacted] affected, at least as a group, which the question seems to imply.

However, were the eight to perceive such a threat, they would be gravely concerned. As we have pointed out, their economic dependence on the canal is far greater than that of the United States. I would expect them to raise the issue of the offending "foreign presence or influence" privately with Panama and the United States, to consult among themselves, and to "go public" with the complaint were the threat to become sufficiently immediate. They might go so far as to ask the OAS for a condemnatory resolution or sanctions.

On the other hand, decision-makers in Washington or abroad should keep in mind that a substantial foreign presence or influence in Panama, while possibly impacting on some Panamanian policies, would not necessarily pose a threat to canal access. In addition, past experience has demonstrated that external pressures to exclude foreign influence have not been notably effective unless supported by military force or covert action. Hence these eight nations and the United States would do well to shift their attention away

from foreign influence per se and concentrate their concern on actual threats or attempts to deny access. Panama should be informed that its friends are its own affair, but the canal must remain open.

II. If a new treaty is concluded, what is the best way of guaranteeing our uninterrupted access to the Canal? I know that you have touched upon this in your statement, but would you elaborate on it?

The best way of guaranteeing our uninterrupted access to the canal is for the United States to make it absolutely clear, privately and publicly, to Panama and the international community generally that we will expect to have nondiscriminatory access for the duration of the new treaty and beyond, and that we will take whatever measures we deem necessary to defend our access. Treaty guarantees are useful but not nearly so important as the United States effective communication of its own resolve.

It is in our interest to involve as many states as possible in formally guaranteeing the canal's operation on a nondiscriminatory basis, but the United States should not surrender to an international body the right to make the final decision as to the action to be taken in the event of a violation. If no other mechanism existed and the United States were plainly the injured party, the OAS might again provide some multilateral support for essentially unilateral action.

TO : YALE H. FERGUSON

FROM: RALPH H. METCALFE, CHAIRMAN
PANAMA CANAL SUBCOMMITTEE

QUESTION: You state that the Canal Zone is almost universally regarded as a vestige of colonialism. What other issues are generally regarded by Latin America as issues of colonialism, what has been the position of the U.S. on those issues, and what have been the outcomes of those issues?

RESPONSE BY PROFESSOR FERGUSON

Most of the strictly "colonial" issues have passed into history since World War II. Latin American governments and the United States gave their support to the postwar anti-colonial tide. The United States did so partly because of principle and partly because of a perception that the tide could be exploited by our Communist opponents. In most cases, we proceeded cautiously, seeking to identify ourselves with nationalist forces without unduly offending our friends in Europe or encouraging the emergence of regimes inimical to our interests. Our ambivalence, until recently, with regard to the problem of majority rule in Southern Rhodesia and South Africa--a legacy of the colonial era--was particularly reprehensible and shortsighted.

From the perspective of Latin America, the Panama Canal is the most important and pressing colonial issue in the world today.

Much further down the list of Latin American concerns is the matter of U.S. rights to the Guantánamo base in Cuba, which stems from the same expansionist period in United States history. However, the issue of the base has long been overshadowed by the

larger question of U.S. relations with the Castro government. The future of Guantánamo will have to be considered somewhere along the line if we are gradually to normalize our relationship with Cuba.

Two other issues, both involving vestiges of the British Empire, are Guatemala's claim to Belize and Argentina's, to the Falkland Islands. There is strong sentiment for full independenc in Belize, and the British would be delighted to withdraw entirely; but without London's protection Guatemala would probably seize the territory by force. Inhabitants of the Falkland Islands are not anxious to fall under Argentine jurisdiction. Neither of these issues has generated a great deal of concern in Latin America. The United States has avoided direct involvement in either dispute, taking the position that any peaceful solution which can be found would be acceptable.

Some Latin Americans also regard the present Commonwealth status of Puerto Rico as a colonial situation. Nevertheless, to the chagrin of nationalists, successive elections, plebiscites, and public opinion polls have demonstrated strong support for the [redacted] Commonwealth formula or statehood, and relatively little for independence. The United States position has generally been that it favors continuance of the Commonwealth, at least until the people of Puerto Rico express an overwhelming preference for some other arrangement.

MINORITY QUESTIONS BY MR. DORNAN OF PROFESSOR YALE FERGUSON

It is argued that Panama would not dare sabotage or disrupt the Canal under continued, permanent U.S. control because that country gets such a large portion of its income directly and indirectly from the Canal. Would not any such eventuality greatly undermine foreign investor confidence in Panama, further disrupting the Panamanian economy?

RESPONSE BY PROFESSOR FERGUSON

Sabotage or disruption would indeed undermine not only earnings from the Canal but also foreign investor confidence in Panama. This is a powerful reason why the Panamanian government can be expected to exercise its stewardship of the Canal responsibly IF a new treaty is concluded.

However, as I argued in my statement, no Panamanian government is going to be able to tolerate foreign control of the country's leading resource for many more years, and a failure to resolve this situation clearly strengthens the appeal of those who are inclined to leftist radicalism and violence. Moves against the Canal would be very costly for the government, but so would inaction in response to the frustrations generated by failure after over a decade of negotiations. Moreover, of course, threats to the Canal may emanate from nongovernmental quarters --riots, sabotage by guerrillas, etc. Extremists are not likely to lose much sleep over the undermining of foreign investor confidence.

TO: The Honorable Robert K. Dornan, Panama Canal Subcommittee August 11, 1977

FROM: Virginia Prewett

RE: Your further questions following Vital Interest hearings of July 25 - 27 1977

1. Please supply for the record the Wall Street Journal item regarding the $8.5 billion in offshore funds on deposit in Panama, and any other particularly valuable source material relating to the type, scope and value of U.S. and other foreign investments in Panama.

I can provide a better source than the Wall Street Journal mention of some $8.5 billion as the amount of offshore deposits in Panama. "Noticias", a digest of inter-American economic news published weekly in New York by the National Foreign Trade Council, reported in its June 20, 1977, issue (Vol. XXXIII, Nº 24, p. 5) a study by the Security Pacific Interamerican Bank. It shows that when Panama passed its revised banking law of 1970,

> "...the national system registered a total generation of external funds amounting to $435 million," but that under the 1970 law, "international banking grew rapidly, obtaining a record off-shore funding of $8,558 million [$8.5 billion plus] by year-end '76".

"Noticias" in turn cited as its source for this item the June issue of the monthly newsletter "Euromoney".

According to this and other sources such as the International Monetary Fund, these offshore deposits are not physically in Panama, but are simply registered there to take advantage of that country's lenient banking laws while they are loaned and manipulated in the free-wheeling Eurodollar market.

This is a convenience of great profit for the U.S. holders of funds and credits generated as overseas profits who do not wish to bring them home to be taxed, and for manipulators laundering funds, for seekers of tax haven, etc.

More directly pertinent to the Canal treaty issue is definitive data compiled with some difficulty by the Congressional Research Service Division of the Library of Congress, and made public late in July, 1977, by the Senate Judiciary's Subcommittee on Separation of Powers. The Library of Congress study shows that U.S. commercial banks are owed, by Torrijos' central government and governmental agencies, the huge sum of $2.77 billion. Some was loaned through the banks' Panama branches, and therefore is

not counted by Panama as "foreign public debt". Reliable estimates reaching me say that other lenders, including commercial banks in Western Europe and Japan, are similarly "over-exposed" in Panama, a nation of 1.7 million people, and that the Panamanian government's total foreign debt is now over $4 billion.

Experts on Panama's finances, which are now in serious difficulties as the country's economic growth stagnates (zero GNP growth for 1976, and expectation of only 1% growth for 1977), say that Panama has no hope of continuing to service its inordinate overseas obligations unless it gets a hugely increased yearly payment from the U.S. as part of a Canal treaty settlement. And that is what the U.S. Administration has been promising: among other economic benefits, to increase the Panama "annuity" from $2.3 million annually to at least $50 million.

Anxiety to rescue the New York financial establishment from its over-exposure in Panama, saving the big banks from having to face the consequences of acknowledging "bad paper" (i.e., bad banking judgment) in their shaky Panama loans, explains the insistent drive staged in those quarters in favor of the new treaty. Attempts have been made to enlist the entire New York investing and business community in this, by talk of prospects of successful investment in new expansion Panama promises, building on lands the government will take from the Canal Zone. Former Under Secretary of State William D. Rogers referred briefly to these plans in his testimony July 27.

You ask in effect for other pertinent figures. It is recalled that Department of Defense testimony at previous hearings before this committee have placed the unrecoverable U.S. investment in Canal defense at $6.5 billion. During the July 25 - 27 hearings, Dr. Stephen R. Gibbs testified that the Canal is actually worth $8.2 billion in 1977. So in giving the Canal and most of the Zone to Panama, U.S. taxpayers will hand over (or have handed over on their behalf) assets representing $14.7 billion, plus close to half a billion in additional "aid" for Torrijos as "indemnity", plus $50 million a year until the end of the century, or over $1 billion more. In all, this adds up to more than $16 billion handed over to Panama, subject to whatever

eventually emerges.

I am sure, though, that U.S. taxpayers, however sensitive to such a whopping dollar donation, sense also that the U.S. investment and stake in the Panama Canal cannot be reckoned in dollars only. The present treaty issue has to do, in the first instance, with the wisdom or unwisdom of the country's making this or any concession under threat.

Shortly after I testified and expressed the view that Washington should not yield to "demand/threats" from another nation -- or group of nations -- a report appeared in Miami's Spanish-language press on a new strategy announced by Cuba's Fidel Castro July 26, the anniversary of the founding of his extreme-left movement. Castro told Cubans as a major pronouncement that he means to rally the numerous African states he has aided and is aiding to help him when he gets into differences with the U.S.

Castro thus says he is deliberately building in advance obligations in Africa that will enable him to repeat the Torrijos pattern of collective "demand/threat" against the U.S.

2, 3. What did Secretary Kissinger consider Latin America's strategic importance to be after the Arab oil boycott? Was it in terms of its oil production, or refineries, or what?

Kissinger, European-born and inclined, for years discounted Latin America's importance and fashioned a Big Power policy, concentrating on U.S. relations with Japan, Western Europe and Russia. When the Arab oil boycott hit in 1973, Kissinger discovered that U.S. big-power allies -- Japan and Western Europe -- neutralized by the oil boycott, could be rendered helpless with frightening ease and swiftness.

At the weakness of his world strategy thus demonstrated, Kissinger did what Washington administrations faced with an extra-continental threat have always done -- he suddenly turned to making amends with Latin America, or trying to.

The U.S. had had to do this to some extent as World War I broke out. In World War II, when France fell, Churchill told Roosevelt, "Keep Latin America's raw mater-

ials from reaching Continental Europe and we can still beat Hitler." Roosevelt intensified the U.S. drive to woo Latin America through attentive help. Roosevelt had already, some years before, begun mending fences in Latin America, prompted by the rising Nazi courtships there to launch the Good Neighbor Policy.

Among other things, Kissinger suddenly saw how the U.S. needed Latin America for its oil. Where he had long snubbed Venezuela, he now courted it, although it was the architect of OPEC, the oil cartel behind the Arab oil boycott. Most of all, Kissinger saw the U.S. in need of friends and apparent allies to display to the world as a counterforce to the Arab oil bloc which had at last in 1973 nerved itself to "use the oil weapon", as Russia had been urging. (The oil boycott, coercing the West to stop Israel's drive up the Nile's West Bank, awakened the Middle East to how it could twist the West via its oil addiction.)

The Arab bloc's use of the "oil weapon", since translated into an exercise of power by the OPEC bloc in finance and economics, can lead to problems we still do not know, nor did Kissinger. He felt a sudden chill, naked in a situation not foreseen in his scenario. Groping desperately for Latin American support in the fall of 1973, he volunteered a few months later to commit the U.S. to the concessionary Canal treaty with Panama, in the belief that this courtship gift would ingratiate Latin America.

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4. What impact was felt by U.S. business and diplomatic interests throughout Latin America -- and in any specific countries you care to mention -- after our intervention in the Dominican Republic?

Latin Americans knew, even if the U.S. public did not, that Johnson acted in the Dominican crisis of 1965 to avert the seizure of power there by a Castro-type leadership. When Johnson thus demonstrated that Washington, even after the Bay of Pigs, did not mean to leave the hemisphere open to the continued advance of totalitarian socialism such as had seized Cuba, both Latin American and U.S. investors breathed more easily.

Lyndon Johnson supported the Alliance for Progress programs begun under Kennedy with his own emphases until the end of his term, though they began to be heavily at-

tacked by the left when Johnson colored them with less liberalism. A study that the Inter-American Development Bank made for me some years ago shows that during the 1960's, a time of $10 billion in Alliance loans to Latin America, the U.S. overall balance of payments with Latin America was favorable by $11.4 billion.

Relations with Latin America (except with Cuba) came to be excellent during this time. When Johnson met with Latin America's Presidents -- all of them -- at Punta del Este in 1968, it was the most harmonious high-level hemisphere meeting in many decades. Obviously, his course with the Dominican Republic had not rankled. At that meeting, only Ecuador, smarting over various issues, sounded a sour note. And that is history.

The uproar over both the Dominican Republic and the fatal riots in Panama in January 1964 had died down. The Panama issue was at rest in the Organization of American States.

After the burnings in U.S. cities in 1968, the U.S. Congress turned nationally inward. One result was the tacit dismantling of the Alliance for Progress -- and the Latin American friendliness of the Johnson era was likewise dismantled under heavy leftist-liberal attack. As Washington let its structure of friendship with Latin America languish, leftist governments appeared there -- in Peru, in Panama, and later in Chile. Argentina grew hostile as Perón returned. And a Mexican President after 1970 began bidding for Third World support hostile to the United States. The Torrijos regime of Panama began edging the Canal issue into the UN, where it could get Cuban and Russian help.

Nevertheless, the Canal issue did not attain a prominent role in hemisphere affairs, even with leftists controlling many New World capitals, until Kissinger gave it prominence in January 1974.

Kissinger was led to believe he could parlay this concession into a "quick fix" for U.S. hemisphere relations. He was misled, for Latin Americans at the Tlatelolco meeting in Mexico in February 1974 rejected his proffered new "hemisphere community" theme outright. Mexico's President Echeverría led this rejection, but others joined

in resentment that the U.S. had again offered to be a friend only because of its own need.

6, 7. Describe what you know of Latin America's foreign ministers' "supporting" Panama's demands for the Canal and Zone, while many of their own commerce and maritime ministers want continued U.S. sovereignty and control over those facilities. Why is such a public posture of Latin American foreign ministers considered so necessary if it is at odds with their nations' true positions and interests?

For home consumption, Latin American politicians adopt anti-U.S. postures in public to offset nationalists, leftists and Communists attacking as "outs".

In the Dominican Republic episode, Venezuela's ambassador to Washington, Enrique Tejera París (now a Venezuelan Senator), attacked the U.S. ferociously in public speeches in the OAS. Yet he confided to a U.S. diplomat (and this was confirmed and published at the time) that, "I will attack the United States in public for the Dominican landing -- and toast you in private for it with a glass of whiskey." This attitude, well understood among our hemisphere neighbors, has come to be called the "Whiskey Doctrine" in consequence.

However, it must be said that when a leftist or Marxist-leaning regime is in power in Latin America, then the anti-American attacks are more genuine and stronger. This also applies where a government of any stripe has a special disagreement with the U.S., such as Ecuador's "tuna war" over offshore fishing rights. And when the U.S. slaps Latin America with something like a "Nixon shock" (the surprise 10% surcharge on imports) or otherwise fails to take the region's interests into consideration, then the complaints and criticisms are more genuine and deeply felt.

Kissinger himself made the Kissinger-Tack agreement a hot issue after the Canal question had died down, and it has been difficult for Latin Americans not to adopt postures of support for Panama. I will point out here again, however, that Latin Americans have grown lukewarm even in such pro forma commitment to Torrijos' cause. Torrijos failed in his much-publicized attempt to gather "all" Latin American Presidents in Panama, despite the handy pretext of marking the 150th anniversary of Simón Bolívar's convocation of the first Inter-American Congress there. So few accepted that the June

1971

1976 event had to be quietly called off.

In his most recent endeavor to dramatize Latin American support for his Canal bid, an August 4 - 6 meeting of heads of state in Bogotá, Colombia, he drew only four Latin American heads of state. They were those of Venezuela (whose President is criticized at home for supporting the authoritarian Torrijos), Colombia, Costa Rica and Mexico. Michael Manley, the left-leaning Premier of Jamaica, came at the last minute as the sole representative of the English-speaking Caribbean, having just been promised hefty U.S. economic help.

It should be pointed out that, at present, most of South America and most of Central America has been relegated by Washington to the human-rights doghouse. In this Washington has revealed a determination to act tough on the issue with anti-Marxist regimes while going very easy on that same human-rights issue with such regimes as Panama's and Peru's, both left-leaning. It cannot be imagined realistically that a new U.S. treaty with Panama, giving the left-leaning dictator Torrijos the Canal and a munificent "indemnity" as well, will do other than exacerbate the bitterness toward Washington now felt by Chile, Argentina, Brazil, Uruguay, Nicaragua, Guatemala and El Salvador. Their bitterness over being indicted by Washington for alleged human-rights abuses was deepened when the U.S. refused at the OAS May General Assembly to grant the cause-and-effect relationship between prolonged Marxist terrorism in those countries and the state-of-emergency measures adopted to deal with terrorism, measures which got them accused of disregard for human rights.

A $16 billion gift to Panama may well whet these offended nations' determination to get even with the United States.

In this country, events in Latin America are not always discussed in their true framework of a world struggle of ideologies -- or of ideologues -- but they cannot be understood outside that context. It should be recalled that the U.S. is supposed to be the leader of the non-Marxist, indeed of the capitalist world. The countries the U.S. has condemned and penalized in Latin America on the score of human rights are

without exception struggling to shore up or restore the economic system that the U.S. exemplifies. The bitter paradox of being scolded and sanctioned by Washington, while the U.S. so visibly woos and rewards Marxist-oriented regimes like Panama's (and now Jamaica's) adds insult to lasting injury, and deeply undermines American credibility world-wide.

End

Virginia Prewett

TO: The Honorable Robert K. Dornan, Panama Canal Subcommittee August 13, 1977

FROM: Virginia Prewett

RE: Addendum to my August 11, 1977, response to your post-hearing questions

In my August 11 response to your further questions in regard to Panama Canal Subcommittee hearings held July 25 - 27, I find that my answer to your Question 5 was inadvertently omitted. Viz.:

5. After our veto of the 1973 UN resolution supporting Panama's demands, what impact was felt by U.S. business and diplomatic interests throughout Latin America?

There was no perceptible repercussion after the 1973 U.S. veto of the UN resolution adopted at Panama, unless it was that Torrijos began to lean heavily on threats of violence thereafter.

Most of Latin America expected the U.S. to veto the UN resolution. Its diplomats knew that under the OAS and UN charters, the issue should not have been taken up by the UN unless and until the OAS had declared itself unable to deal with it -- an action the OAS had not taken. The UN Security Council meeting in Panama was, strictly speaking, a wildcat action encroaching on OAS charter authority.

In any event by 1973, Latin America had a "grocery list" of far larger, more immediate complaints against the U.S. There was Washington's dumping of the Alliance for Progress after 1968. And the Kissinger-Nixon "conspicuous neglect" of Latin America. In 1971 had come the "Nixon shocks", dollar-defense actions which penalized Latin America without warning or discussion, and with what seemed to the region little reason -- a 10% reduction in aid, a temporary 10% tariff surcharge although the U.S.-Latin American balances of both trade and payments favored the U.S., and finally, taking the dollar off gold, which penalized Latin America's large dollar holdings, reducing their value by an estimated 10% to 16%.

And there were grievances over U.S. policy on both sugar and coffee in world commerce. Chile, Bolivia and Peru had expropriated U.S. investments. The Latin American demand for special U.S. tariff concessions still dragged. In light of all this, Panama's demands for the Canal were not a front-burner issue in 1973-1974.

TO: The Honorable Ralph H. Metcalfe, Chairman
Panama Canal Subcommittee

August 11, 1977

FROM: Virginia Prewett

RE: Your further questions following Vital Interest hearings held July 25 - 27, 1977

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1. Prewett presentation asserts that the official position of Latin American governments on the Panama Canal issue is the result of an inevitable "low-burning fire of complaint against the United States" nurtured by Latin American leadership. Prewett states that the Canal issue is part of a "complaint/demand" syndrome on the part of Latin America. Since what one person may regard as a legitimate aspiration another may regard as an unfounded complaint, how is the U.S. to judge what issues should be addressed in inter-American relations? By what criteria should we judge the Panama Canal aspirations of Latin America?

Nurtured by some Latin American leadership sectors, I believe I said, "usually on the left". And Latin America is seldom monolithic, whether in "complaint/demands" or in the Panama Canal aspirations attributed to that region.

I'll answer the last part of the question first by saying that the "aspirations of Latin America" for the U.S. to give the Panama Canal to Panama have shrunk to pro forma votes at the Organization of American States. Latin America's actions speak louder than such words, as the number of Latin American governments still willing to support Torrijos' quest publicly has dropped to four, plus one English-speaking Caribbean nation lately mustered.

When Torrijos promoted a "show-of-hands" meeting of allies on the Canal issue to meet in Bogotá, Colombia, on August 5 and 6 of this year, only Mexico, Colombia, Venezuela and Costa Rica were represented, along with Jamaica. It is curious that these same four Latin American nations, urging that the U.S. presence in Panama be ended as a "colonial relic", are the very ones with which the Administration today claims, and indeed enjoys, it most amicable hemisphere relations. Jamaica's Manley belatedly accepted the invitation to Bogotá immediately after receiving promise of hefty U.S. aid for his leftward sliding and greatly depressed economy. The Bogotá gathering, albeit skimpily attended, was curiously convenient for the U.S. Administration, pledged as it is to the Kissinger-type treaty and needing to use Latin America's supposed support for Panama as an argument with the Congress and the American people.

Similarly at this time last year, Torrijos attempted to gather all Latin American presidents at a summit "show-of-hands" for his cause in Panama. So few accepted the invitation that he called it off -- no summit could be held. So much for the idea of widespread "Panama Canal aspirations of Latin America".

How the U.S. is to judge what issues should be addressed in inter-American relations boils down to how the U.S. should approach issues on which it differs with neighbor nations, since otherwise the question of selecting issues does not arise.

Differences with other nations that have become "complaint/demands" for U.S. concessions must be judged in consideration of "how", "who", "what" and "why". The U.S. national interest, and the interest of the Western nations whose freedom U.S. military power guarantees, must be important factors.

To start with, and harking back to a U.S. tradition that began with the Barbary pirates and is alive today in U.S. refusal to negotiate with the kidnappers of U.S. foreign service officers, nothing shall be conceded by this country under threat.

That said as to "how", let's look at the "who" the U.S. is dealing with in the Canal treaty issue. Panama's Omar Torrijos actually refers to himself as the "Idi Amin of Latin America". The U.S. is spectacularly pledged to a foreign policy attinged with zeal for human rights. The credibility of that U.S. pledge suffers as, in dealing with Torrijos, the U.S. ignores well-documented and shocking violations of human rights by the Torrijos regime.

The U.S. has criticized and penalized Chile, Argentina, Uruguay, Brazil, Guatemala, Nicaragua and El Salvador -- which comprise by far the greater part of the land and population of South and Central America -- on the score of human rights. Yet the world sees that U.S. leadership, which has cracked down hard in the name of human rights against seven anti-Marxist Latin American governments, is preparing to make an enormous concession to one small, threatening left-leaning regime that is a flagrant human rights offender.

The evidence on which the U.S. has acted against seven Latin American governments rests basically on reports from groups of exiled and opposition citizens of those coun-

tries. Exactly similar reports by a committee of reputable Panamanians and Panama-Americans accuse the Torrijos regime.

The Panamanian Committee for Human Rights has put copies of three well-documented reports into the hands of many Senators and Congressmen, so the situation is not unknown on Capitol Hill.

In Volume One, page 1, the Report lists the names of 33 Panamanians known to have been murdered since 1968 as part of political repression by Torrijos' military men. That was a beginning. In Volume Two, page 6, after much hard work, the committee, which operates in Panama at great risk, reported:

> "The Torrijos dictatorship has used extreme repression against political, professional, business, student and labor groups. It is conservatively estimated that in the eight years the dictatorship has expatriated around 1,300 Panamanians and murdered around 500, which in a tiny country of only 1.7 million inhabitants is equivalent to, in a country the size of the United States, 168,000 expatriations and 65,000 assassinations."

As a journalist for over 25 years, in scores of articles I have exposed violations of human rights in many Latin American countries, reporting on cruelties by regimes of both the right and the left. I was aware of Torrijos' murders and tortures as early as 1968-1969, although I had not had reports in such detail as the Human Rights Committee now supplies.

A short résumé of the tortures used by the Torrijos National Guard's G-2, as attested by the Panamanian Committee for Human Rights:

> In the Republic of Panama, the Dictatorship of Omar Torrijos has systematically tortured the persons who stand against his regime. The most recent case -- in January of 1976 -- that of Argentinian Citizen Antonio Poore, who was arrested and tortured by the Panama National Guard (G-2) for his stand against the expatriation of the businessmen, lawyers, University Professors who on Jan. 20th, 1976, were exiled to Ecuador by order of Torrijos. Previous cases of tortures since 1968, among others, include those of:
>
> Nat Mendez Jr., Fernando Ayala, Francisco Mata -- for vigorously condemning the "Disappearance" of Catholic Priest Hector Gallegos.
>
> Sammy Sitton -- brutally tortured by the National Guard for speaking his mind against the Communist oriented Dictatorship of Omar Torrijos.
>
> Enrique Moreno -- after being tortured by the National Guard he was able to leave the country and resides in Miami, Fla.

Eduardo White -- imprisoned for a long time. He was tortured and murdered from blows to his stomach and chest.

Luis Medrano (Catholic Priest) -- he was made to wear a black hood over his head and ostensibly taken for a ride towards his death. This psychological torture is frequently utilized by the communist oriented Dictatorship of Torrijos. He was not murdered, as had been planned, because one of the directors of his Radio Station (Radio Hogar) recognized Noriega, head of the G-2, as one of the individuals taking him away.

Names of other tortured Panamanians are best kept unmentioned, for fear of endangering their lives, as they still reside in Panama.

As methods of torture, we cite some:

a) Placing the person in a cell with sexual deviates so that the prisoner is carnally abused. No names for obvious reasons.

b) Bone crushing machines where the hands of the prisoner are inserted -- case of Nat Mendez Jr.

c) Blows with a rubber hose -- this does not leave marks.

d) Blows with the fists to the stomach and chest. This procedure is commonly used when the prisoner is to be kept in jail for a long time.

e) Carnal violation of women -- case of Dorita Moreno -- brutally and sexually abused. Was later taken to the "paredón" [wall used for firing-squad executions] for being part of a group which supported Dr. Arnulfo Arias, the President overthrown by the Military Coup of 1968.

f) Keeping the prisoner incommunicado for days. Forced to undergo long questioning under strong lights, not being allowed to sleep. For these sessions the prisoner is made to undress at the start and stay thus, to further degrade him.

g) Tub baths with ice, in the dawn hours. [Excruciatingly painful "hypoinsolation"]

h) Electric shocks to vital parts of the body of the arrested person. Case of Tony Poore.

i) Simulating the execution of the accused. The most recent case being also that of Antonio Poore.

j) Placing the accused in the tripod position for hours on end. This consists of making the person stand with legs spread apart, away from the wall, hands on his neck and forehead against the wall. If any movement is made a G-2 whips him with a rubber hose.

Let us now consider both the "what" and the "why" of Torrijos' demand/threat for control and exploitation of the Panama Canal.

Torrijos bases his demand on his assumption that the right to exploit the Canal as a money-earning asset overrides every other consideration that may be adduced -- a lingering trace of fief-right doctrine, entitling a ruler to help himself to whatever his domain may contain, grotesquely adapted to suit the Torrijos regime's economic interests.

Against this, the U.S. has to weigh the stake of the hundreds of millions of the world's peoples for whom, without discrimination, the U.S. has operated the Panama Canal

for decades as a non-profit international public utility.

The U.S. economy has benefitted from the U.S. indirect subsidy via its non-profit operation of the Canal, it is true. But Panama's economy has benefitted as well, and richly. Chile's economy, and Peru's and Japan's -- the economies of perhaps a hundred nations have similarly benefitted. To put the economic interest of Panama's people, or of its present or future governors, ahead of those of the whole world is what is grotesque.

In addition, the U.S. must weigh into "what" and "why" the fact that it bears the responsibility of the peace-keeping military defense of our own people, and those of Japan and Western Europe. Four former Chairmen of the U.S. Joint Chiefs of Staff, Admirals Thomas Moorer, George Anderson, Arleigh Burke and Robert Carney, recently wrote President Carter a letter touching this consideration. They said: "The Panama Canal represents a vital portion of our U.S. naval and maritime assets, all of which are absolutely necessary for free world security."

Panama's Torrijos levels his threat/demand against the U.S. within the context of a premise that the U.S. has benefitted greatly and exclusively from the Canal; that the U.S. has done Panama wrong by not giving it the Canal as a gift from the beginning; that the U.S. owes Panama a sizable "indemnity" for having built the Canal across its soil; that the U.S. is "too wealthy" and that its people's standard of living should be brought down; that all in all the U.S. presence in Panama has done Panama a "wrong" that must be "righted".

I feel that the American people must find very distasteful Washington's implicit guilty plea to this indictment, implied by Administration willingness to pay Panama a negotiated "indemnity", on top of giving it the Canal.

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2. If Secretary Kissinger had not signed the Eight Points in 1974 and the U.S. had refused to engage in substantial discussions with Panama, would this have helped U.S.-Latin American relations?

When Kissinger signed the Eight Point agreement with Panama in January 1974, it was

not in response to any list of requirements on the Canal presented to Washington by Panama or Latin America. Quite the contrary. The Canal issue was resting in relative quiescence except for efforts by Torrijos to get it into the UN where Cuba and Russia could join him in using it as a bargaining lever against the United States.

To re-state part of my testimony, what happened was that after the 1973 oil boycott demonstrated the vulnerability of the big powers on which Kissinger had staked his diplomacy in his Five-Power strategy, Kissinger suddenly awoke to the U.S. need for Latin America, a region he had previously downgraded in U.S. diplomacy and ignored.

It was Kissinger who asked the State Department's Bureau of Inter-American Affairs to get him up, virtually overnight, a program that would "win back" Latin America. I discussed this in answering a question from Rep. Dornan, and refer you to my more extensive comment there.

So it was Kissinger who, prompted by advice by aides hurriedly searching for a "quick fix" for U.S. hemisphere affairs, rushed off to Panama and broached the Eight Point commitment that he signed with Foreign Minister Tack, no doubt to the pleased surprise of Torrijos.

We can only speculate about what would have happened if Kissinger had not volunteered the Eight Point commitment. Certainly, the U.S. then and now would have been in a better bargaining position vis-a-vis Panama and/or Latin American demands regarding the Canal.

What we do know is that his signing the Eight Points did not bring Latin American nations trooping to his banner as he hoped, either in 1974 or later. In another response, I detail the many real grievances that had grown up between Latin America and the U.S. during Kissinger's tenure. His "New Dialogue" overture to Latin Americans, headlined as part of his new policy as exemplified by the Eight Point agreement, sputtered out when he met with Latin American ministers at Mexico City soon after he signed the Eight Points. They were not impressed by his ideas for a "New Hemisphere Community", and slapped them down with little ceremony.

Virginia Prewett

Economic Interests of The United States in The Panama Canal and Canal Zone During the Last Quarter of the 20th Century

A Summary Reply to Questions to be Addressed by

Howard F. Casey
Deputy Assistant Secretary of Commerce
for Maritime Affairs

Witness and Panelist, Panel #2 - Economic Interests, The Panama Canal Subcommittee of the House Committee on Merchant Marine and Fisheries

July 25, 1977

Panel #2 - Economic Interests: A Summary Reply to Questions

The remarks that follow represent prevailing views within the U.S. maritime industry. They draw upon the experience of the industry as well as upon formal studies and statements prepared by the Maritime Administration, the Department of Commerce, the Panama Canal Company, the Department of Transportation, the Department of Defense and others.

1. Economic Value of the Canal to the U.S. in Terms of Exports and Imports

Figure 1 summarizes recent and forecast U.S. imports and exports through the Canal as estimated from the Maritime Administration's continuing analysis of U.S. trade data. The historical portions of the graphs show imports totaling about 27 million long tons in the 1975-1976 time period with exports totaling about 54 million long tons in the same period. The forecast portions of the graphs show that by the year 2000 total imports will have doubled and total exports will be at 2 1/2 times today's level.

The exact numbers in the forecast may be challenged, but the point to be made here is that MarAd expects U.S. trade on the routes associated with the Canal to rise substantially over the remainder of the century. Accordingly, even if some of the new cargo flow cannot be handled by it, the Canal should see increased traffic in future years and increase in value to its users.

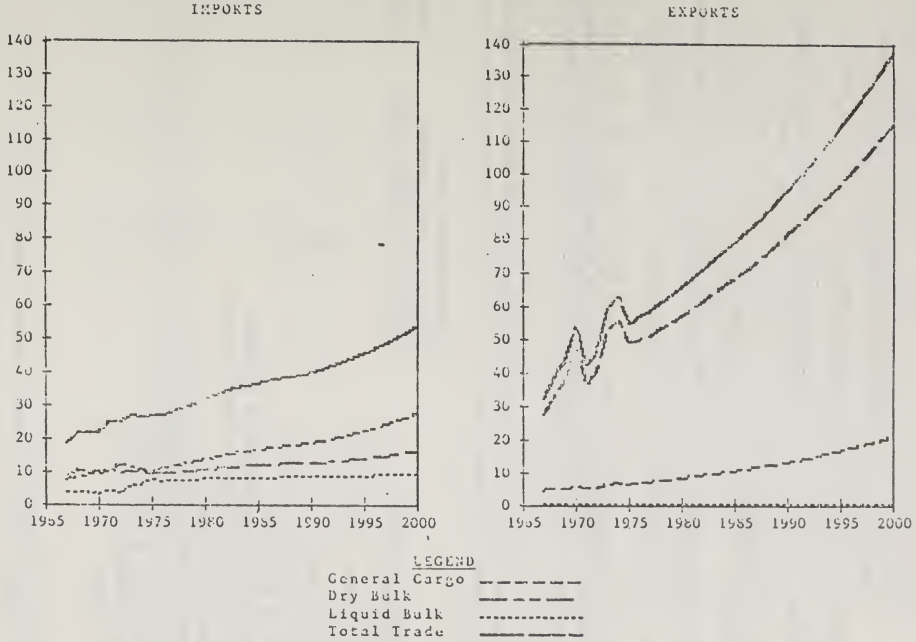
The Panama Canal Company's own 1976 Annual Report, shows that 33.3 percent of the 117,212,266 long tons of principal Canal commodities that transited the Canal during FY 1976 were U.S. exports or imports or part of the U.S. domestic intercoastal trade.1/ The following compares U.S. Canal trade with total U.S. waterborne trade for FY 1976:2/

1/ Panama Canal Company and Canal Zone Government Annual Report, Fiscal Year Ended June 30, 1976, Table 13, pp. 50-55, Table 14, pp. 56-63, and Table 19, pp. 120-121.

2/ MarAd figures for years 1975-1976 as indicated in Figure 1 differ from corresponding Canal Company figures in two respects: (1) they are calendar year figures; and (2) they are derived from total trade route data that include non-Canal traffic.

U.S PANAMA CANAL TRADE
FORECAST SUMMARY

(Millions of Long Tons)



	Volume in Long Tons	Canal Volume, Long Tons	Percent by Canal
Imports	404,200,000	24,275,168	6.0
Exports	245,900,000	49,125,982	20.0
Total Waterborne Foreign	650,100,000	73,401,150	11.3
Total Coastwise	207,100,000 a/	4,677,888	2.2
Total Oceangoing	857,200,000	78,079,038	9.1

a/ Approximate 1975 figure from Department of the Army, Corps of Engineers, Waterborne Commerce of the United States, Calendar Year 1975, Part 5, National Summaries, p. 6.

In terms of types of cargo, the economic value of the Canal is perhaps indicated by the following summary:3/

Commodity Group	Approximate Total Volume Through Canal, Millions of Long Tons	Percent of Total Cargo
Petroleum & Products	22	18.7
Grains	20	16.3
Coal & Coke	17	14.3
Mfrs. of Iron, Steel	10	7.6
Ores & Metals	9	7.3
Nitrates, Phosphates & Potash	6	5.3
Misc. Agricultural Commodities	6	5.1
Lumber & Products	6	4.8
Canned & Refrigerated Foods	4	3.5
Chemicals, Petrochemicals	3	2.1
Machinery & Equipment	2	2.0
Misc. Minerals	2	1.9
All Other	13	11.1

3/ Panama Canal Company Annual Report, 1976, p. 11.

The Panama Canal Company does not keep statistics on the value of commodities moving through the Canal, but in 1974 a MarAd study estimated such values in order to estimate the economic impact on U.S. trade of toll increases or of a complete loss of access to the Canal.4/ The value of 1973 U.S. imports through the Canal was placed at about $14 billion while U.S. exports through the Canal were estimated to be worth about $5 billion. The volumes of U.S. exports and imports for that period were approximately what they are now. With modest allowances for inflation and consideration of guadrupled petroleum costs, one might suggest a current value for U.S. imports through the Canal of $20 billion and $7 billion for exports, equivalent to an average value of $370 per ton for all cargo flow.

The commodities that move through the Canal tend to make up high density, low value cargo. They are essential to the functioning of an industrial society. They include major grain and other food shipments to the world. Disruption of this cargo flow could have adverse effects on the U.S. and its trading partners.

4/ The Panama Canal in U.S. Foreign Trade: Impact of a Toll Increase and Facility Closure, Maritime Administration, May 15, 1974.

2. Economic Value of the Canal to the U.S. in Terms of Gross National Product

Numerous attempts have been made over the years to estimate the economic value of the Canal. In a study by International Research Associates completed in December 1973, it was determined that the annual net economic value of the Canal "can be viewed as the difference between the resource cost of operating the Canal and the resource cost of providing equivalent services in the most economical alternative method." Their projection for 1975 was $93 million, a small fraction of the current $1.7 trillion Gross National Product of the United States. However, unless one is analyzing a large segment of the economy, such as manufacturing, retail trade, etc., the Gross National Product is not the best measure for evaluation,

Perhaps a more appropriate measure of the economic impact of the Canal can be shown by comparison with U.S. international trade figures. For FY 1976, 62.6% of the Canal's total commercial cargo tonnage (73.4 million long tons) had either a U.S. origin or destination in foreign trade. This represents about 11.3% of our total waterborne foreign trade by weight. Assuming an average value of about $370 per ton as derived earlier, this implies a total value of U.S. origin and destination cargo transiting the Canal of about $27 billion.

In addition, approximately 4% of Canal commercial cargo tonnage was in intercoastal U.S. domestic trade in FY 1976. This was approximately 4.7 million long tons with a value of approximately $1.7 billion. This was about 2% of domestic ocean trades.

3. Alternative modes of Transportation and the Consequences of their Use to U.S. Consumers and Producers

The availability of alternative modes of transportation for cargoes transiting the canal is highly dependent upon the nature of cargoes. It is true that many break-bulk commodities can utilize railroad and truck transport (the land-bridge system) to move between the two oceans. Although required rolling stock can be deployed in a relatively short period of time, there would likely be a substantial shortfall of rail and truck capabilities to carry all break-bulk traffic now transiting the canal in the short-run. Furthermore, the scheduling problems surrounding a new distribution system would be significant. Bulk commodities, for example, have fewer alternatives. Petroleum transport, for example, is limited by the present short availability of operational pipelines. Slurrying systems for ores and coal are still under development.

The Department of Transportation has recommended studying these alternative modes, but has not completed an analysis at the present time.

4. Past and Future Economic Benefits of the Canal to the U.S. and Other Countries

Existing trade data give a good indication of the role of the Canal in the U.S. economy; however, there are several additional factors which should be acknowledged in evaluating the contributions which the Canal makes. The movement of both commercial and military cargo between the U.S. East Coast and West Coast via the Canal affords savings in intercoastal shipping costs.

The benefits accruing to the United States through the remainder of this century will continue to be substantial. Even though U.S. and world economies are expected to continue to recover and grow, the Canal capacity is expected to remain adequate at least through the year 2000. The growing traffic will include both Alaskan North Slope and Indoenesian crude oil. Availability of the Canal will enhance the economic incentivies for development of oil sources yet to be proved.

Reliance on the Canal by other countries is substantial and exceeds that of the U.S. in many cases. Origin-destination data oontained in the Panama Canal Company's 1976 Annual Report shows this dependence by country. In the case of Ecuador, whose economy depends heavily on trade, 73% of their imports and exports were Canal-oriented in 1974. Moreover, the United States purchases 30-40% of Ecuador's exports while providing about 33% of her imports. Generally, most Central American and West Coast South American countries rely heavily on the Canal.

Yet another estimate of the economic value of the Canal to the U.S. and to other countries as well is contained in the 1974 MarAd paper on Canal toll hikes and closure that was mentioned earlier. A generalized conclusion of the paper was that the near-term losses of domestic revenue and costs to U.S. consumers in the event of a complete closure might be assessed at several billion dollars. The analysis assumed lengthened trade routes with no diversion of cargo to other modes of transportation.

5. Extent of U.S. Investment in the Canal; Prospects for Return on that Investment

The total U.S. investment in the Panama Canal Company totals $512.4 million. The current interest-bearing portion of this total is $319 million. The magnitude of the interest paid in FY 1976 was $16.6 million. Since 1950, the Panama Canal Company has repaid only about $40 million on principal. Although a breakeven situation is projected for the current fiscal year, the Panama Canal Company has experienced deficits in both FY 1975 and 1976. In light of these facts, the prospects for a return on the United States' investment is not great - nor is it meant to be. The current charter under which the Panama Canal Company operates does not allow for profit motivation but instead cites a breakeven operation as a goal.

The benefits of this arrangement accrue to the various national users through the sellers, buyers and shipping lines. It is estimated that the United States benefits to the extent of approximately one third of the total of these savings with Japan and Canada sharing 19 and 5 percent, respectively. This was also borne out in the 1974 MarAd Canal toll hike and closure study in which the increased cost to the rest of the world for U.S. exports due to closure was almost twice the increased cost to U.S. consumers for imports.

6. Economic Costs to the U.S. for Operating, Defending and Governing the Canal and Canal Zone

The total economic cost to all users of operating the Canal in FY 1976 was $258,719,426. Included in this amount is $22,649,145 attributable to the net cost of operating the Canal Zone Government. The most recent estimate of the cost of defending the Canal was given by the Department of Defense in September 1974:

	Fiscal Year (Thousands of Dollars)		
Military Dept.	1972	1973	1974
Army	107,428	120,893	123,014
Navy a/	23,912	16,972	16,684
Air Force	35,436	36,546	36,740
Total	166,776	174,411	176,338
Man Years of Military Strength	10,533	10,321	10,414

a/ Includes Marines

7. The Canal's Economic Life; Costs and Benefits of Modernization to the U.S.

The Maritime Administration believes that as long as the Canal is able to make its toll structure attractive to Canal users, its economic life will be assured. The Panama Canal Company has performed its maintenance functions in a laudatory fashion, and, if it continues to do so, the Canal should provide efficient service through the remainder of the century without substantial capital improvements. The Canal, in its present state, permits transit of laden or in-ballast vessels drawing from 39.6 feet of water depending upon prevalent rainfall conditions. Other physical limitations for vessels transiting the Canal are 950 feet maximum length and 106 feet maximum beam (width). A proposed third lock would expand the maximum length of the locks to 1200 to 1500 feet and the beam to 140 feet. While it is true that 7 percent of the world's merchant fleet cannot transit the Canal due to size limitations, it should be pointed out that virtually all of this ineligible tonnage was designed for trades which would not include Canal transit. Only 4 percent of the U.S. merchant fleet is unable to transit the Canal. For these reasons, therefore, economic obsolescence is not a critical factor. It is generally believed that the currently planned maintenance schedule (which includes provisions for the deepening of the channel to increase the water supply, and the straightening of some curves) will be more than sufficient to assure continued economic life through the remainder of this century.

8. Canal Revenue and Future Economic Viability of the Canal; Prospects for Toll Increases and Subsidies

The 1976 income statement of the Panama Canal Company shows an operating loss in fiscal years 1975 and 1976.5/ The Panama Canal Company estimates, however, that operations for the current fiscal year will yield close to a break-even situation.

Concerning prospects for additional toll hikes in the years to come, the trend evidenced by fiscal year 1977's operations demonstrates that further increases will not be necessary if world trade continues to improve. Continuing inflationary pressures may alter this outlook, however.

The probability of taxpayer subsidy for Canal operations appears slight in view of the fact that over its entire history, the President has never allowed the Canal's financial situation to deteriorate to the point where Congress had to approve subsidies. On the two occasions that the Canal appeared to be in financial distress, both since 1973, the President has granted toll hikes.

5/ op. cit., Table 2, p. 28

9. Implications of Canal Usage for U.S. Energy Demands; Significance of U.S. Energy Imports and Exports Through the Canal

The Maritime Administration anticipates increased usage of the Canal to meet U.S. energy demands as it does to meet other demands for transport of commodities. Detailed forecasts of U.S. imports and exports through the Canal are shown in the attached excerpts from an internal MarAd trade forecast. Reference to commodity codes 331, 332, and 341, particularly in the import group (page 2 of the excerpt), will give the reader an indication of the energy implications for Canal usage as MarAd sees them. In brief, MarAd sees overall steady growth above present levels in Canal transport of energy-related commodities out to the end of the century. It is expected, for example, that Indonesian crude as well as other oils, some yet to be discovered, will transit the Canal during this time.

An indication of the significance of the U.S. energy imports and exports which now transit the Canal is given in the attached table on petroleum shipments over U.S. Canal-related trade routes. Present levels of annual petroleum shipments through the Canal account for three to four days of U.S. total petroleum demand. Thus, the level of petroleum transits alone is significant in meeting U.S. energy requirements.

Northville Industries, a U.S.-owned corporation, recently negotiated a contract with the Panamanian Government to construct a transshipment terminal at Puerto Armuelles on the Pacific Coast. It is expected that this terminal will handle North Slope oil for a limited time - until pipeline alternatives can be built in the early 1980's - and minimal amounts of Strategic Petroleum Reserve oil. Beyond its early uses, this facility will be available to aid the transshipment of oil from other sources and thus extend the viability of the Canal even into a period of increased operation of very large petroleum tankers. The fact of the capital investment in this facility reflects a confidence in expanded use of the Canal by the petroleum industry.

PANAMA CANAL IMPORTS

(LONG TONS)

CODE	DESCRIPTION	-HISTORY- 1973	1974	1975	-	-FORECAST- 1980	1985	1990	1995	2000
001	LIVE ANIMALS	25	1	0	-	5	5	5	5	5
011	MEAT, FRESH, CHILLED OR FROZEN	413318	316436	396691	-	654450	808672	973411	1194989	1468277
012	PORK, ORD, SLTD, SMOKED	21	68	10	-	41	44	44	48	52
013	MEATS IN CONTAINERS, N.E.S.	24903	24128	16108	-	48250	61810	75355	93039	114827
022	MILK AND CREAM	27180	16904	6646	-	10022	10223	10572	10571	10570
023	BUT. & CREAM OVER 45% B. FAT	13393	0	17	-	1280	1281	1349	1349	1349
024	CHEESE AND CURD	24314	40695	16916	-	23546	23475	25091	25088	25081
025	EGGS, BIRDS, ALBUMEN & YOLK	178	196	220	-	167	157	162	162	162
031	FISH,FRESH,OR SIMPLY PRESERVED	105405	100846	85079	-	62474	83968	89199	89190	89172
032	FISH, AIRTIGHT CONT, N.E.C.	44674	55466	38422	-	36748	34400	35314	35308	35302
041	WHEAT, UNMILLED	18	0	0	-	2	2	2	2	2
042	RICE INCLUDING PATNA	15	12	15	-	11	11	11	11	11
043	BARLEY, UNMILLED	6167	0	0	-	931	917	960	960	960
044	CORN OR MAIZE, UNMILLED	10	0	104	-	22	22	22	22	22
045	CEREALS, UNMILLED, N.E.S.	15	14	99	-	14	10	10	10	10
048	CEREAL AND FLOUR PREPARATIONS	4725	4951	4085	-	4984	5054	5337	5335	5334
051	FRUITS, FRESH	576135	643065	636114	-	667079	657242	678450	678381	678291
052	FRUITS, DRIED	1070	1218	503	-	875	864	887	886	886
053	NUTS & FRUITS, N.E.S.	95294	97350	122129	-	109849	104480	106597	106583	106571
054	VEGETABLES, FRESH, CHLO, FRZN.	8871	13617	8723	-	9562	9462	9523	9524	9524
055	VEGETABLES, PRESERVED N.E.S.	86023	83862	66164	-	68990	66130	67130	67123	67116
061	SUGAR, SYRUPS, MOLASSES, HONEY	2885503	2852211	2181512	-	3346874	3827588	4263540	4860318	5521022
062	SUGAR, CONFECTIONERY	4498	4884	6538	-	10106	12381	14181	16148	18356
071	COFFEE	332915	310078	329087	-	294012	278222	284320	284276	284240
072	COCOA	29559	49261	32906	-	33098	31285	32026	32020	32017
073	CHOCOLATE	2503	2274	774	-	1658	1542	1567	1567	1566
074	TEA AND MATE	17690	17917	17140	-	12269	11632	12154	12151	12148
075	SPICES	23558	22519	16662	-	21206	20996	21332	21331	21329
081	FEEDING-STUFF FOR ANIMALS	38482	31637	61643	-	32984	21794	21239	21219	21210
091	LARD AND BUTTER SUBST.	2	7	18	-	7	7	7	7	7
099	FOOD PREPARATIONS, N.E.C.	9272	6552	8200	-	6588	5814	6068	6066	6065
111	NONALCOHOLIC BEVERAGES, N.E.C.	630	761	862	-	1247	1682	2065	2596	3263
112	ALCOHOLIC BEVERAGES	107469	93846	89466	-	161724	209745	255261	320791	403174
121	TOBACCO, UNMANUFACTURED	22027	21552	21774	-	24392	33308	45977	62288	83878
122	TOBACCO MANUFACTURES	537	580	1148	-	986	1333	1796	2390	3174
211	HIDES & SKINS, UNDRESSED	7324	6482	5501	-	8894	11264	7308	6646	5995
212	FUR SKINS, UNDRESSED	328	363	370	-	496	629	480	456	433
221	OIL SEEDS, OIL NUTS, KERNELS	3809	3479	3871	-	3853	2550	1688	1116	736
231	RUBBER CRUDE	455883	449279	461443	-	623287	792792	970317	1205017	1494449
241	FUEL WOOD, CHARCOAL, AND WASTE	244	114	841	-	443	446	478	512	532
242	WOOD, IN THE ROUGH	4432	1734	699	-	1860	1590	1151	953	782
243	WOOD, SHAPED OR SIMPLY WORKED	1914674	1091768	700308	-	1422032	1321806	889912	705660	559951
244	CORK, NATURAL, RAW AND WASTE	149	163	160	-	112	103	75	61	49
251	PULPS AND WASTE PAPER	544	54	201	-	2529	1698	1126	754	508
261	SILK, RAW	1208	868	359	-	647	558	371	251	167
262	WOOL AND OTHER ANIMAL HAIR	26003	14704	20227	-	26228	21138	12502	8057	5031
263	COTTON	1744	2054	2403	-	2481	1731	896	551	340

CODE	DESCRIPTION	-HISTORY- 1973	1974	1975	-	-FORECAST- 1980	1985	1990	1995	2000
264	JUTE	7592	7375	7341	-	6470	6047	5116	4722	4066
265	FIBERS, VEGETABLE N.E.S.	24662	37097	22075	-	24184	23232	19889	14191	9536
266	MAN MADE FIBERS	23907	21331	12258	-	16033	16017	15983	15634	13492
267	WASTE FROM TEXTILE FABRICS	1739	2548	2709	-	1955	1602	866	614	433
271	FERTILIZERS, CRUDE	83837	162131	135927	-	134805	162575	201165	255291	320786
273	STONE, SAND, AND GRAVEL	242595	194733	1762	-	65997	85946	71118	73820	76622
274	SULPHUR AND CRUDE IRON PYRITES	0	0	67	-	1560	2045	2579	3245	4075
275	NATURAL ABRASIVES, INC. DIAMON	12	209	21	-	54	49	41	33	21
276	CRUDE MINERALS N.E.S.	501923	405929	468771	-	576276	617368	662369	718374	796484
281	IRON ORE AND CONCENTRATES	2502585	2748748	3465670	-	2939106	3201654	3251824	3426252	3615718
282	IRON AND STEEL SCRAP	168	358	14541	-	8470	10564	11034	12327	13731
283	ORES, CONCENTRATES NONFERROUS	977449	800016	703943	-	675533	634987	627824	601342	559049
284	NONFERROUS METAL SCRAP	59194	44957	51908	-	60690	74319	78638	85602	93162
285	PLATINUM	15	401	412	-	645	763	799	852	913
286	THORIUM ORES AND CONCENTRATES	1880	1152	2306	-	1947	2152	2191	2379	2585
291	ANIMAL MATERIALS, NES, CRUDE	9127	6349	6376	-	9508	9354	9311	9310	9310
292	VEGETABLE MATERIALS NES, CRUDE	34926	39331	28003	-	33799	34044	34113	34113	34113
321	COAL, COKE AND BRIQUETS	143	537894	226945	-	310462	561289	814338	1321467	2145856
331	PETROLEUM, CRUDE	2522830	3288399	5175063	-	4908756	5271587	5489930	5724455	5971628
332	PETROLEUM, PRODUCTS	3287824	2933816	2631874	-	2949310	2915875	2982714	3139348	3304767
341	GAS, NATURAL & MANUFACTURED	19549	308	66	-	18365	29044	40490	60335	90036
411	ANIMAL OILS AND FATS N.E.S.	5591	3679	3669	-	4796	4669	5741	7125	8833
421	FIXED VEGTABLE OILS, SOFT	3010	2336	4581	-	3590	3708	4267	4932	5755
422	FIXED VEGETABLE OILS, N.E.C.	330987	245029	534780	-	895400	1077018	1387910	1715528	2118206
431	FATTY ACIDS, WAXES, FATS, OILS	404	532	267	-	522	563	720	897	1120
512	ORGANIC CHEMICALS	360556	507700	313235	-	822313	1300014	1874545	2767873	4055431
513	INORGANIC CHEMICAL ELEMENTS	247259	257114	428318	-	329376	494318	694258	1007359	1461155
514	INORGANIC CHEM.EXCEPT ELEMENTS	18862	38414	12458	-	26462	37518	50911	71667	101747
515	RADIOACTIVE-STAGLE ISOTOPES	0	1	0	-	0	1	1	1	2
521	MINERAL TAR AND TAR OILS	483	421	83	-	760	838	964	1199	1761
531	SYNTHETIC ORGANIC DYESTUFFS	923	1473	632	-	1663	2624	3792	5610	8243
532	DYEING AND TANNING EXTRACTS	1739	972	872	-	1070	1648	2593	4302	6816
533	PIGMENTS, PAINTS, VARNISH	1557	1222	853	-	1878	2961	4276	6305	9249
541	MEDIC AND PHARMAC. PRODUCTS	2285	3031	2689	-	4050	6143	8651	12555	18215
551	ESSENTIAL OILS, PERFUME.	2427	2624	1442	-	2864	4931	7378	11138	16579
553	PERFUMES, COSMETICS, DENTIFRIC	352	301	228	-	590	867	1214	1763	2558
554	SOAPS AND POLISHING PREPS.	1006	1518	3271	-	4898	7893	11545	17277	25579
561	FERTILIZERS, MANUFACTURED	246268	166889	232076	-	239473	365066	518704	756357	1099116
571	EXPLOSIVES & PYROTECHNIC PRO.	5433	979	1350	-	4919	7470	10564	15367	22330
581	PLASTIC MATERIALS, SYN. RESINS	49494	57598	36295	-	86544	124670	170594	241807	345018
599	CHEM. PRODS & MTLS. N.E.C.	37905	46866	30363	-	62526	86894	116647	163634	231865
611	LEATHER	1071	713	559	-	709	730	748	777	823
612	MANUFACTURES OF LEATHER N.E.C.	8889	8603	3671	-	11021	14609	17355	21203	25888
613	FUR SKINS, DRESSED	13	16	9	-	20	24	27	34	42
629	RUBBER, MFGRS. FINISHED NEC.	35990	26186	21665	-	66594	88305	113052	147287	191876
631	WOOD VENEERS, PLYWOOD BOARDS	941979	625146	632305	-	831906	920554	858457	873203	888214
632	WOOD MANUFACTURES, N.E.C.	56699	60650	36735	-	68942	78013	74124	75463	76818
633	CORK MANUFACTURES	1725	1496	1065	-	1944	2199	2112	2148	2186
641	PAPER AND PAPERBOARD	148506	122132	61680	-	88912	91595	84467	82402	80369
642	ARTICLES & PAPER PULP, PAPER	11435	7742	6739	-	15630	17115	16300	15982	15669

CODE	DESCRIPTION	-HISTORY- 1973	1974	1975	-	-FORECAST- 1980	1985	1990	1995	2000
651	TEXTILE YARN AND THREAD	14410	18850	13731	-	20456	20648	16782	14724	12891
652	COTTON FABRICS, WOVEN	63965	60213	55008	-	55945	54976	47990	44530	41351
653	TEXTILE FABRICS, WOVEN	17774	13360	15661	-	19031	18690	17362	16701	16072
654	TULLE, LACE, EMBROIDERY, ETC.	1829	1546	1405	-	1639	1590	1357	1245	1146
655	SPECIAL TEXTILE FABRICS, INCL	10669	11235	11545	-	10823	11219	13151	14088	14923
656	MADE-UP ARTICLES, TEXTILE, NEC	8686	7186	6264	-	11160	10700	8255	7116	6099
657	FLOOR COVERING, TAPESTRIES ETC	15596	9002	8882	-	13060	11717	7585	5505	4491
661	BUILDING MATERIAL, LIME,CEMENT	157065	75562	15168	-	114457	153845	180124	225685	282358
662	CLAY AND REF. CONSTRU MATERIAL	97052	71442	42308	-	183808	312332	349848	482717	665432
663	MINERAL MANUFACTURES, N.E.C.	3595	3195	3289	-	4361	6000	7565	9948	13082
664	GLASS	77969	47455	28921	-	35247	24946	12905	7491	4390
665	GLASSWARE	10656	6649	4312	-	10827	12295	19237	25102	32858
666	POTTERY	60966	46120	40926	-	79146	85040	132499	171493	221552
667	PRECIOUS, SEMI-PRECIOUS STONES	175	127	175	-	250	267	393	493	622
671	PIG IRON	97831	115255	339216	-	233070	300061	244473	242724	240953
672	IRON OR STEEL PRIMARY FORMS	11142	5747	54647	-	38640	49134	38770	38476	38183
673	IRON OR STEEL BARS.	809236	1002831	850753	-	710897	751871	704407	703176	701952
674	IRON OR STEEL PLATES & SHEETS	2125378	2025285	2016129	-	2066592	2281345	2051058	2045101	2039190
675	HOOP & STRIP OF IRON OR STEEL	29844	17311	15703	-	21719	24919	21344	21251	21160
676	RAILS OR RAILWAY TRACK MATERIA	1947	2840	53178	-	40593	50155	43017	42794	42568
677	IRON OR STEEL WIRE, EXCL.	171650	192698	145184	-	161450	180459	156687	156064	155443
678	IRON OR STEEL TUBES, FITTINGS	490128	535971	624129	-	586764	677614	582325	579612	576900
679	IRON OR STEEL CASTINGS,FORGING	2725	2655	2713	-	2910	3174	3067	3064	3059
681	SILVER AND PLATINUM	4	38	83	-	18	17	17	17	17
682	COPPER & COPPER ALLOY	157808	260449	96633	-	126577	111089	100616	90162	79109
683	NICKEL & NICKEL ALLOYS ETC.	4204	5777	8607	-	7206	7440	6923	6064	5307
684	ALUMINUM & ALUMINUM ALLOYS	9874	11294	10817	-	16240	14821	13982	13085	12208
685	LEAD & LEAD ALLOYS	72182	32466	17610	-	27559	21494	18483	16276	14336
686	ZINC & ZINC ALLOYS	81055	90494	36117	-	76958	74157	71032	67393	64168
687	TIN & TIN ALLOYS	36534	28809	34967	-	29103	24483	21493	18818	16461
689	NON FERROUS BASE METAL N.E.C	5579	5311	6403	-	6110	6057	5789	5410	5076
691	FIN.STRUCTURAL METAL PARTS NE	12833	8226	2383	-	10271	14814	13936	15858	17942
692	METAL CONTAINERS FOR STORAGE	1601	2178	2404	-	4165	6167	5900	6768	7753
693	WIRE PRO. NON ELECTRIC FENCING	149218	151842	98056	-	170362	250027	230687	268492	311294
694	NAILS, SCREW, NUTS, BOLTS, ETC	332088	380412	227270	-	393412	560754	519967	598489	687390
695	HAND AND MACHINE TOOLS	33833	27894	20221	-	42773	59908	55757	63430	72122
696	TABLE FLATWARE AND CUTLERY	17338	13539	11950	-	21861	30438	28390	32374	36884
697	HOUSEHOLD EQUIP. OF BASE METAL	37500	30540	28690	-	54041	74013	70453	79882	90557
698	MANUFACTURES OF METAL, N.E.C.	79328	66057	60209	-	124410	175122	167050	190992	218092
711	POWER GENERATING MACHINERY	44466	42812	28544	-	68595	102180	156866	233942	347192
712	AGRICULTURAL MACHINERY, ETC.	18796	24536	26268	-	49107	71654	106950	156492	229286
714	OFFICE MACHINES AND PARTS	8439	8674	7066	-	14388	22027	35296	54198	81965
715	METALWORKING MACHINERY & PARTS	11461	25764	30078	-	32056	46778	71188	104083	152398
717	TEXTILE & LEATHER MACHINERY	18172	18373	10416	-	23052	36342	58286	87734	130987
718	MACH. FOR SPEC INDUSTR.	12337	18296	24619	-	29887	46386	73346	111578	167702
719	MACH. & APPLIANCE N.E.C.	140463	70551	65223	-	164925	252742	397454	600158	897959
722	ELECTRIC POWER MACHINERY	18652	20376	15155	-	27311	40518	62971	94137	139899
723	EQUIP. FOR DISTRIBUTING ELEC.	12815	6639	7512	-	13005	19271	30863	47472	71253
724	TELECOMMUNICATIONS APPARATUS	69917	45279	47148	-	99007	138757	206443	301556	440688
725	ELECTRIC REFRIGERATORS	17371	9662	10914	-	23559	34124	51491	75664	111179

CODE	DESCRIPTION	-HISTORY- 1973	1974	1975	-	-FORECAST- 1980	1985	1990	1995	2000
726	ELECTRIC APPARATUS, MEDICAL	261	327	308	-	491	724	1101	1638	2425
729	ELECTRICAL MACHINERY N.E.S.	42010	33187	22422	-	37119	32852	24434	12549	13785
731	RAILWAY VEHICLES AND PARTS	4723	17840	30522	-	37200	44050	52899	62248	73353
732	ROAD MOTOR VEHICLES AND PARTS	702045	819492	676419	-	1130300	1351878	1668294	2015524	2428157
733	VECHICLES OTHER THAN ROAD MTR	27686	20334	8635	-	27067	31770	39046	46931	56301
734	AIRCRAFT AND SPACECRAFT	1239	1257	715	-	832	913	1131	1348	1608
735	SHIPS.BOATS.FLOATING STRUCT.	8669	13134	3219	-	6749	7468	8928	10532	12441
812	PLUMB. HEATING, EQUIP LIGHTFIX	11938	8397	5142	-	12443	13426	11633	11245	10870
821	FURNITURE	41574	30876	23891	-	43436	56423	59592	69623	81229
831	TRAVEL GOODS, HANDBAGS, ETC.	30127	19359	17458	-	34019	41963	51568	64135	79716
841	CLOTHING, ETC. NOT FUR	124204	93763	82699	-	183495	229098	281468	349098	432877
842	FUR CLOTHING INCL.	67	111	72	-	112	151	195	249	318
851	FOOTWEAR	66367	53899	45564	-	111337	142933	177800	222375	277534
861	SCIENTIFIC, MED, APPARAT.N.E.C	9620	8348	6077	-	13518	19767	30047	45056	67363
862	PHOTOGRAPHIC SUPPLIES, INCL.	3823	3247	4559	-	6504	9757	14843	22206	33147
863	MOTIONPICTURE.PHOTOFILM N.E.C.	4	0	2	-	12	20	30	45	66
864	WATCHES & CLOCKS PARTS INCL.	3030	3292	2918	-	5885	9063	13920	20964	31436
891	SOUND RECORDERS AND PARTS	30781	19674	15781	-	52909	71680	95192	126773	168631
892	PRINTED MATTER	10324	10120	7849	-	21824	30906	42564	58412	79420
893	PLASTIC MANUFACTURES, N.E.C.	66737	52120	37780	-	107932	144367	190974	253595	336596
894	BABY CARRIAGES, TOYS, GAMES	83699	55852	46454	-	140507	187644	248783	330769	438915
895	OFFICE & STATIONERY SUPPLIES	3754	2875	1576	-	4638	5822	7339	9385	12094
896	WORKS OF ART, ANTIQUES	3554	2510	1609	-	9473	13982	19583	26832	36438
897	JEWELRY AND RELATED ARTICLES	5497	5524	5343	-	9694	12662	16532	21860	28928
899	MANUFACTURED ARTICLES, N.E.C.	52936	35178	27329	-	76706	105306	141669	189932	253891
931	SPEC. TRANSACTIONS NOT CLASS.	19623	27495	22943	-	22325	22336	22339	22339	22339
941	ANIMALS.LIVE.N.E.C. INCL	0	0	0	-	0	0	0	0	0
951	ARMORED FIGHTING VEHICLES,ARMS	83	110	61	-	179	174	173	173	173
PANAMA CANAL TOTALS (LT THOUSANDS)		27186	26827	27074	-	32258	36757	39755	45622	53507

PANAMA CANAL EXPORTS

(LONG TONS)

CODE	DESCRIPTION	- HISTORY - 1973	1974	1975	-	- FORECAST - 1980	1985	1990	1995	2000
001	LIVE ANIMALS	689	39	73	-	361	412	464	534	614
011	MEAT,FRESH, CHILLED OR FROZEN	15914	17437	14898	-	33769	40357	46512	53853	62107
012	MEAT, DRIED, SLTED, OR SMOKED	182	758	809	-	505	517	539	583	626
013	MEAT IN CONT. N.E.S.	294	275	196	-	298	304	328	369	422
022	MILK AND CREAM	12563	6994	5992	-	12532	12119	12920	14584	16455
023	BUTTER AND ANHYDROUS MILK FAT	0	9	17	-	97	100	109	121	136
024	CHEESE AND CURD	86	155	278	-	138	148	157	170	188
025	EGGS, BIRDS, EXCL. EGG ALBUM.	715	148	826	-	939	1174	1348	1531	1735
031	FISH,FRESH,OR SIMPLY PRESERVED	5636	4543	4387	-	7486	8558	9464	10493	11649
032	FISH, AIRTIGHT CONT. N.E.C.	3466	3904	2981	-	3520	3664	3913	4285	4700
041	WHEAT, UNMILLED	3953620	3402707	2851622	-	3912111	4663624	5554922	6588147	7779877
042	RICE	704344	576883	172673	-	734344	753053	779646	810065	846671
043	BARLEY, UNMILLED	0	0	10	-	6408	6916	7635	8505	9505
044	CORN OR MAIZE, UNMILLED	10546424	8380918	7074781	-	10758247	12730966	14856476	17247089	20004118
045	CEREALS, UNMILLED, N.E.S.	2846356	2511458	2149656	-	2314942	2479605	2720683	3015623	3355881
046	WHEAT FLOUR, MEAL, AND GROATS	36198	99557	30822	-	50367	54956	90155	143316	204693
047	CEREAL FLOUR, MEAL AND GROATS	11154	15603	8540	-	4911	4403	5260	6956	8882
048	CEREAL AND FLOUR PREPARATIONS	139732	109196	73743	-	107298	112102	122627	139069	158113
051	FRUITS, FRESH	226704	299023	354962	-	386871	465854	527606	594816	670405
052	FRUITS, DRIED	55718	51865	52630	-	63235	65425	69206	74830	81211
053	NUTS & FRUITS, N.E.S.	108759	86854	72692	-	99038	110421	123434	140732	160176
054	VEGETABLES, FRESH, CHLO, FRZN.	21139	20232	26462	-	27637	31013	35063	40303	46037
055	VEGETABLES, PRESERVED N.E.S.	14940	16855	13810	-	16402	17603	18967	20758	22775
061	SUGAR, SYRUPS, MOLASSES, HONEY	6282	5097	3414	-	10727	12057	13547	15429	17249
062	SUGAR, CONFECTIONERY	841	1051	879	-	1168	1261	1367	1503	1653
071	COFFEE	2699	1158	621	-	1206	1258	1305	1358	1417
072	COCOA	2564	2824	2597	-	2697	2793	2896	3034	3189
073	CHOCOLATE	598	589	880	-	829	934	1049	1192	1355
074	TEA AND MATE	150	83	16	-	87	96	107	125	143
075	SPICES	1244	1850	1200	-	1509	1696	1877	2101	2354
081	FEEDING-STUFF FOR ANIMALS	411992	231528	124175	-	320094	406823	515020	672825	885574
091	MARGARINE AND EDIBLE FATS	17931	18144	24882	-	25111	25420	26284	27690	29128
099	FOOD PREPARATIONS, N.E.C.	16650	17453	23479	-	20173	20860	22298	24501	26980
111	NONALCOHOLIC BEVERAGES, N.E.C.	634	2044	344	-	1853	2756	3680	5095	7004
112	ALCOHOLIC BEVERAGES	2760	5194	4478	-	8143	11628	15152	20542	27790
121	TOBACCO, UNMANUFACTURED	84616	113664	85192	-	93747	113645	137858	166261	198337
122	TOBACCO MANUFACTURES	14522	15848	13986	-	17484	20317	22911	25629	28701
211	HIDES & SKINS, UNDRESSED	28515	25370	30014	-	48850	56530	62533	68288	74388
212	FUR SKINS, UNDRESSED	35	71	25	-	33	33	34	34	36
221	OIL SEEDS, OIL NUTS, KERNELS	4402009	4042925	3768367	-	4528123	5476630	6545732	7868318	9457044
231	RUBBER CRUDE	55598	40392	24690	-	39008	38787	40449	43298	46333
241	FUEL WOOD,CHARCOAL,AND WASTE	334	647	621	-	350	477	588	733	913
242	WOOD, IN THE ROUGH	11658	9396	8464	-	21762	26628	32777	41438	52339
243	WOOD, SHAPED OR SIMPLY WORKED	88277	35601	48034	-	128563	159763	190279	232369	285441
244	CORK, NATURAL, RAW AND WASTE	4	2	2	-	1	2	2	3	3
251	PULPS AND WASTE PAPER	284919	404680	306493	-	377374	469789	585201	726054	900559
261	SILK, RAW	110	68	17	-	80	80	61	83	85

CODE	DESCRIPTION	- H I S T O R Y - 1973	1974	1975	-	- F O R E C A S T - 1980	1985	1990	1995	2000
262	WOOL AND OTHER ANIMAL HAIR	3996	1077	639	-	4257	4584	4814	5005	5200
263	COTTON	750249	586431	330424	-	645014	659299	676531	695357	714662
264	JUTE	1	4	5	-	4	4	4	4	4
265	FIBERS, VEGETABLE N.E.S.	309	101	94	-	98	99	102	103	103
266	MAN MADE FIBERS	54057	40274	37617	-	70069	125052	208136	354748	602614
267	WASTE FROM TEXTILE FABRICS	4953	3756	4083	-	8660	8970	9186	9358	9537
271	FERTILIZERS, CRUDE	3891679	4134176	3452616	-	4196431	4828644	5539659	6366638	7391208
273	STONE, SAND, AND GRAVEL	55781	36807	16631	-	35957	38973	44934	52179	61322
274	SULPHUR AND CRUDE IRON PYRITES	198172	265551	56038	-	155158	235834	326681	436012	568299
275	NATURAL ABRASIVES, INC. DIAMON	42071	37960	31794	-	50807	59856	70274	82986	98370
276	CRUDE MINERALS N.E.S.	846258	794778	797637	-	886091	1046870	1240066	1497202	1811421
281	IRON ORE AND CONCENTRATES	440	552	590	-	2973	3002	3060	3163	3281
282	IRON AND STEEL SCRAP	3891836	2387060	2064524	-	3017501	3836499	4580430	5504954	6599851
283	ORES, CONCENTRATES NONFERROUS	67245	99346	88152	-	139804	182411	217823	258524	306739
284	NONFERROUS METAL SCRAP	47510	49194	36196	-	52670	64667	76176	89799	105940
285	PLATINUM	4	27	75	-	59	75	89	107	129
291	ANIMAL MATERIALS, NES, CRUDE	6088	3984	3725	-	5772	6190	6722	7387	8096
292	VEGETABLE MATERIALS NES, CRUDE	8223	7031	7895	-	11205	12382	13349	14253	15123
321	COAL, COKE AND BRIQUETS	17481617	25942354	20226737	-	23280670	28693135	35084277	42271927	50480683
331	PETROLEUM, CRUDE	0	0	0	-	369	272	240	228	216
332	PETROLEUM, PRODUCTS	3019269	2410140	2160562	-	2185522	2138130	2090674	2046831	1982396
341	GAS, NATURAL & MANUFACTURED	32603	1503	3969	-	30932	30197	29463	28751	28056
411	ANIMAL OILS AND FATS N.E.S.	96305	75988	46752	-	84796	103045	125453	152052	183548
421	FIXED VEGETABLE OILS, SOFT	165626	185862	120812	-	140829	171354	206481	247802	296725
422	FIXED VEGETABLE OILS,N.E.C.	43547	19291	14063	-	38512	47392	56243	66139	77876
431	FATTY ACIDS,WAXES,FATS,OILS	16293	10243	5538	-	7136	8600	10329	12365	14777
512	ORGANIC CHEMICALS	754948	759533	543527	-	935864	1276678	1698137	2266865	3011470
513	INORGANIC CHEMICAL ELEMENTS	412521	499700	473849	-	530550	692163	890043	1156460	1511430
514	INORGANIC CHEM.EXCEPT ELEMENTS	155555	212278	187624	-	308311	391982	497574	642730	833586
515	RADIOACTIVE & STABLE ISOTOPES	975	1011	452	-	1382	2004	2670	3521	4637
521	MINERAL TAR AND TAR OILS	40961	26277	39953	-	50034	60759	73647	91867	115812
531	SYNTHETIC ORGANIC DYESTUFFS	5207	5565	3152	-	7856	10885	14206	18534	24210
532	DYEING AND TANNING EXTRACTS	889	916	996	-	926	1122	1385	1806	2403
533	PIGMENTS, PAINTS, VARNISH	15371	16984	9553	-	21247	28677	37771	49997	66020
541	MEDIC AND PHARMAC. PRODUCTS	6480	7182	5594	-	10938	14156	18108	23826	31367
551	ESSENTIAL OILS, PERFUME.	2743	3361	1774	-	2676	3541	4577	5944	7744
553	PERFUMES,COSMETICS,DENTIFRICES	4458	6577	5406	-	7523	10260	13440	17651	23178
554	SOAPS AND POLISHING PREPS.	23731	24055	19774	-	33294	45092	59668	79652	106344
561	FERTILIZERS, MANUFACTURED	1250877	1378172	931440	-	1461603	1971246	2599998	3487088	4667290
571	EXPLOSIVES & PYROTECHNIC PRO.	3337	6131	5467	-	5466	6402	7533	9030	10997
581	PLASTIC MATERIALS, SYN. RESINS	338331	238393	136057	-	386955	551321	748643	1012757	1358882
599	CHEM. PRODS & MTLS. N.E.C.	267624	312789	209862	-	282989	320938	363597	418675	490338
611	LEATHER	8107	8023	6208	-	13251	18004	23160	30457	40026
612	MANUFACTURES OF LEATHER N.E.C.	547	591	341	-	612	792	1003	1305	1690
613	FUR SKINS, DRESSED	109	35	52	-	31	38	44	58	75
621	RUBBER MANUFACTURES,UNVULCANIZ	8122	6629	4115	-	9381	11071	12889	15020	17513
629	RUBBER, MFGRS, FINISHED NEC.	7642	12740	9463	-	12456	14029	15851	18037	20805
631	WOOD VENEERS, PLYWOOD BOARDS	3757	29984	5337	-	16497	25739	34740	50281	72678
632	WOOD MANUFACTURES, N.E.C.	10743	11871	10464	-	19389	27860	36184	50683	71459
633	CORK MANUFACTURES	108	90	98	-	140	187	236	323	447

CODE	DESCRIPTION	1973	1974	1975	-	1980	1985	1990	1995	2000
		- H I S T O R Y -				- F O R E C A S T -				
641	PAPER AND PAPERBOARD	303422	368436	266217	-	355985	431825	519865	634669	779013
642	ARTICLES & PAPER PULP, PAPER	15285	20310	15039	-	19584	24247	29307	35728	44176
651	TEXTILE YARN AND THREAD	38524	28484	12081	-	60587	93629	130651	189999	275453
652	COTTON FABRICS, WOVEN	24256	18013	8693	-	30442	41591	54238	74639	104095
653	TEXTILE FABRICS, WOVEN	14147	14272	7994	-	22701	33210	44948	63949	91311
654	TULLE, LACE, EMBROIDERY, ETC.	414	849	439	-	1159	1702	2302	3262	4642
655	SPECIAL TEXTILE FABRICS, INCL	6407	7770	4162	-	12746	19085	26148	37551	53898
656	MADE-UP ARTICLES, TEXTILE, NEC	11485	11241	12844	-	25304	38851	54010	78575	113945
657	FLOOR COVERING, TAPESTRIES ETC	17785	22446	16641	-	40225	62319	86237	124331	179129
661	BUILDING MATERIAL, LIME,CEMENT	5815	9731	5609	-	13399	16179	18898	22551	27023
662	CLAY AND REF. CONSTRU MATERIAL	48608	50810	50707	-	69090	80117	90995	105997	127244
663	MINERAL MANUFACTURES, N.E.C.	11231	16802	15476	-	24230	31739	39385	50188	63389
664	GLASS	18697	24598	15331	-	36959	56432	79137	116286	170463
665	GLASSWARE	12742	18844	13880	-	19096	22924	26677	31849	38225
666	POTTERY	89	118	104	-	218	285	346	432	532
667	PRECIOUS, SEMI-PRECIOUS STONES	615	439	70	-	500	680	843	1056	1315
671	PIG IRON	11957	16921	4648	-	29961	40284	59127	82176	113013
672	IRON OR STEEL PRIMARY FORMS	163065	103807	62072	-	111183	133710	174233	223463	289221
673	IRON OR STEEL BARS.	83352	93861	30308	-	159883	201507	271717	358253	474036
674	IRON OR STEEL PLATES & SHEETS	263003	230081	119476	-	247590	296919	383633	487786	627202
675	HOOP & STRIP OF IRON OR STEEL	19321	29853	3989	-	26656	34393	47298	63014	84043
676	RAILS OR RAILWAY TRACK MATERIA	10808	12441	18671	-	32802	41656	56975	75962	101370
677	IRON OR STEEL WIRE, EXCL.	5616	4111	2241	-	12730	16172	22366	30046	40321
678	IRON OR STEEL TUBES, FITTINGS	71487	144592	168987	-	313428	410779	567073	760026	1018185
679	IRON OR STEEL CASTINGS,FORGING	7241	4228	7071	-	21110	27116	37308	50035	67060
681	SILVER AND PLATINUM	39	426	4	-	144	144	144	144	145
682	COPPER & COPPER ALLOY	15430	14234	14267	-	15775	17103	18745	22115	27388
683	NICKEL & NICKEL ALLOYS ETC.	1384	2532	2626	-	2870	3948	5148	6937	9380
684	ALUMINUM & ALUMINUM ALLOYS	33031	34231	40028	-	38082	52758	68627	91592	122839
685	LEAD & LEAD ALLOYS	7696	6434	853	-	6490	9313	12350	16862	23080
686	ZINC & ZINC ALLOYS	6164	7996	2176	-	2633	3958	5407	7539	10442
687	TIN & TIN ALLOYS	637	560	117	-	263	335	416	536	698
688	URANIUM & THORIUM METAL	0	0	2	-	3	5	6	9	12
689	NON FERROUS BASE METAL N.E.C.	5134	3309	6169	-	8022	11471	15440	21428	29592
691	FIN. STRUCTURAL METAL PARTS NE	26273	48930	61201	-	86711	122218	158444	213113	286283
692	METAL CONTAINERS FOR STORAGE	3024	3724	6854	-	8450	11512	14746	19723	26694
693	WIRE PRO. NON ELECTRIC FENCING	5471	10347	7567	-	13122	17277	21502	27902	36485
694	NAILS, SCREW, NUTS, BOLTS, ETC	3143	4593	3748	-	6962	9422	12069	16269	22058
695	HAND AND MACHINE TOOLS	5026	6760	6019	-	10845	14740	18831	25097	33482
696	TABLE FLATWARE AND CUTLERY	377	449	337	-	906	1303	1692	2270	3031
697	HOUSEHOLD EQUIP. OF BASE METAL	1474	1767	1697	-	3109	4346	5595	7449	9864
698	MANUFACTURES OF METAL, N.E.C.	17728	25385	23282	-	40008	56033	72762	98271	132376
711	POWER GENERATING MACHINERY	34521	56041	57438	-	75424	90763	105965	126594	151063
712	AGRICULTURAL MACHINERY, ETC.	23990	36993	46063	-	70343	83597	96655	114239	135073
714	OFFICE MACHINES AND PARTS	1830	2591	1879	-	2789	3159	3604	4270	5051
715	METALWORKING MACHINERY & PARTS	14612	20466	22513	-	21987	25614	29261	34232	40147
717	TEXTILE & LEATHER MACHINERY	23138	25070	11893	-	34722	43843	52529	64014	77632
718	MACH. FOR SPEC INDUSTR.	66758	115389	124781	-	170632	208873	243620	288667	342095
719	MACH. & APPLIANCE N.E.C.	107397	169796	184163	-	253784	308534	360163	428294	509023
722	ELECTRIC POWER MACHINERY	25382	32325	39065	-	54263	69145	83860	104275	129684

CODE	DESCRIPTION	-HISTORY- 1973	1974	1975	-	-FORECAST- 1980	1985	1990	1995	2000
723	EQUIP. FOR DISTRIBUTING ELEC.	3581	9825	7586	-	10810	13413	15863	19194	23377
724	TELECOMMUNICATIONS APPARATUS	4957	7722	5106	-	10254	12931	15585	19267	23850
725	ELECTRIC REFRIGERATORS	6844	11280	8008	-	14740	19321	23919	30348	38345
726	ELECTRIC APPARATUS, MEDICAL	229	1752	419	-	1201	1569	1935	2439	3070
729	ELECTRICAL MACHINERY N.E.S	24214	33891	24618	-	45327	57320	69287	85937	107105
731	RAILWAY VEHICLES AND PARTS	2455	3295	7423	-	7464	8123	9045	10139	11404
732	ROAD MOTOR VEHICLES AND PARTS	97355	138416	138115	-	173679	191850	213640	238663	267567
733	VECHICLES OTHER THAN ROAD MTR	2566	3954	5926	-	6105	6966	7809	8711	9756
734	AIRCRAFT AND SPACECRAFT	1559	2447	2538	-	3357	3834	4369	4972	5672
735	SHIPS.BOATS.FLOATING STRUCT.	2323	2319	7106	-	5527	6229	7006	7884	8919
812	PLUMB. HEATING, EQUIP LIGHTFIX	5758	5296	5374	-	6321	7655	9162	11120	13521
821	FURNITURE	1818	3205	2245	-	6029	9069	12163	16888	23246
831	TRAVEL GOODS, HANDBAGS, ETC.	380	425	198	-	658	923	1190	1616	2191
841	CLOTHING, ETC. NOT FUR	5208	4930	2794	-	3563	2981	2167	1545	1097
842	FUR CLOTHING INCL.	5	15	1	-	12	13	9	6	4
851	FOOTWEAR	193	253	215	-	364	453	545	665	813
861	SCIENTIFIC, MED. APPARAT.N.E.C	5884	7326	6733	-	12342	16999	21930	29355	39294
862	PHOTOGRAPHIC SUPPLIES, INCL.	10459	13080	9598	-	23706	33758	44238	59849	80745
863	MOTIONPICTURE,PHOTOFILM N.E.C.	23	12	23	-	16	18	21	26	36
864	WATCHES & CLOCKS PARTS INCL.	495	414	161	-	448	652	853	1149	1545
891	SOUND RECORDERS AND PARTS	6907	5355	4030	-	8937	12065	15325	19924	25885
892	PRINTED MATTER	17782	23391	21869	-	35566	48537	62912	83825	110906
893	PLASTIC MANUFACTURES, N.E.C.	6059	10419	7470	-	12958	17689	22463	29096	37681
894	BABY CARRIAGES, TOYS, GAMES	7027	7555	5487	-	25094	35659	46857	62778	83438
895	OFFICE & STATIONERY SUPPLIES	1821	1903	1375	-	1992	2529	3118	3975	5075
896	WORKS OF ART, ANTIQUES	124	86	58	-	136	181	223	282	359
897	JEWELRY AND RELATED ARTICLES	111	178	116	-	234	322	420	558	736
899	MANUFACTURED ARTICLES, N.E.C.	1487	1971	1583	-	2918	3792	4758	6175	8010
931	SPEC. TRANSACTIONS NOT CLASS.	2117	2294	2264	-	3050	3186	3317	3494	3710
941	ANIMALS.LIVE.N.E.C. INCL	0	0	2	-	2	2	2	2	2
961	COIN, OTHER THAN GOLD	2	0	591	-	600	795	954	1155	1394
PANAMA CANAL TOTALS (LT THOUSANDS)		60001	63429	54309	-	66400	80050	95839	114725	137342

Petroleum Shipments Over U.S. Related Trade Routes a/
(thousands of long tons)

	Fiscal Year			
	1976	1975	1974	1973
East Coast U.S. to West Coast U.S.	1,263	874	1,098	420
East Coast U.S. to West Coast Canada	24	-	15	-
East Coast U.S. to West Coast Central America	11	11	49	92
East Coast U.S. to West Coast South America	41	67	86	91
East Coast U.S. to Balboa, Canal Zone	1	1	3	68
East Coast U.S. to Hawaii	26	-	-	-
East Coast U.S. to Oceania	74	71	58	74
East Coast U.S. to Asia	277	320	492	547
East Coast Canada to West Coast U.S.	-	30	52	-
East Coast Central America to West Coast U.S.	25	26	32	31
East Coast Central America to Hawaii	-	-	35	39
East Coast South America to West Coast U.S.	1,398	2,677	4,094	2,032
East Coast South America to Hawaii	65	122	61	31
West Indies to West Coast U.S.	1,595	1,968	1,791	1,293
West Indies to Hawaii	288	227	87	69
Europe to West Coast U.S.	207	173	396	93
Africa to West Coast U.S.	100	74	100	-
Africa to Hawaii	110	88	144	-
Asia (Middle East) to West Coast U.S.	43	-	-	-
West Coast U.S. to East Coast U.S.	764	790	256	195
West Coast U.S. to East Coast South America	-	27	2	66
West Coast U.S. to Cristobal, Canal Zone	17	27	-	-
West Coast U.S. to West Indies	-	31	19	101
West Coast U.S. to Europe	1,622	1,884	1,774	2,197
West Coast U.S. to Africa	37	54	94	1
West Coast Canada to East Coast U.S.	23	358	1,475	-
West Coast South America to East Coast U.S.	1,111	188	1,344	1,704
Oceania to East Coast U.S.	-	9	14	19
Asia to East Coast U.S.	119	140	190	92
Totals	9,241	10,237	13,761	9,255

a/ Source: Panama Canal Company Annual Report for 1976, Table 17.

10. Present and Future Value of the Canal to Developing Countries; Effect on U.S. Relations with those Countries

International Research Associates, a private consulting firm under contract to the Panama Canal Company has completed a seven volume study of the effects of toll rate increases on the U.S. economy, Oceania, Europe, South America, the Far East, Canada and the Caribbean Region, and Central America, Mexico and Panama. Among the conclusions of the study were that, in general, developing nations rely much more heavily upon trade for their economic life than do the industrially advanced nations.6/ In addition, it is a fact that many of the nations in the areas of the world mentioned above use the Canal extensively in developing their trade. In 1974, some 73 percent of Ecuador's imports and exports were Canal-oriented, and, in the case of Peru, almost half of their tonnage passed through the Canal. Generally, most Central American and West Coast South American countries rely heavily on the Canal.

6/ Among the highly developed nations, a notable exception to this generalization is Japan.

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11. Elements such as Time Savings, Distance Savings, Safety, Port Proximity, etc., which make Canal Usage Attractive to the U.S. Merchant Fleet

Each of the elements listed above makes Canal usage attractive to the merchant fleets of both the U.S. and the rest of the world. The table below gives examples of the savings in terms of both time and distance for vessels traveling on three specific trade routes. Fuel savings are generally proportional to the time and to the distance saved.

	Nautical Distance			Steaming Days @ 16 kts.		
Trade	Via Canal	Via Cape Horn	% Savings	Via Canal	Via Cape Horn	% Savings
El Segundo to U.S. Gulf	4,495	13,540	67	11.7	35.3	67
Valdez to U.S. Gulf	6,806	15,843	57	17.7	41.3	57
Indonesia to U.S. Gulf (via Panama Canal)	12,444	17,183	28	32.4	44.8	28
Indonesia to U.S. Gulf (via Suez Canal)	11,702	17,183	32	30.47	44.8	32

Safety is also an advantage offered by the use of the Canal. To the extent that merchant ships can avoid the hazardous waters of Cape Horn, operators can lessen the risk of collisions and groundings and reduce their insurance premiums.

12. Factors that would Destroy the Present Cost-effectiveness of Use of the Canal by the U.S. Merchant Fleet

The Panama Canal is currently operating well below capacity with between 12,000 and 13,000 transits per year by commercial oceangoing vessels. The Maritime Administration estimates that North Slope oil will impose, at its maximum, only about 700 additional transits per year by 1982. Moreover, the Panama Canal Company does not expect 100% capacity utilization of its present facilities before the turn of the century. In fact, according to one of its more conservative estimates, the number of transits may reach no more than about 17,000 in the year 2000. The Company believes that if queuing or economic obsolescence did become a problem, about 10 to 12 years would be needed to construct a third lock which would provide the capability to handle larger vessels and in greater numbers.

The Maritime Administration is concerned, however, with other factors which could destroy the present cost-effectiveness of the use of the Canal. The Panama Canal Company estimates that 52,000,000 gallons of fresh water is required for each vessel that transits the Canal. During dry periods, there is a shortage of water available for Canal use. In fact, the maximum allowable draft through the Canal was reduced by about two feet for about three months in FY 1976 to conserve water. MarAd is hopeful that the deepening of the channel which is required to alleviate this problem will take place as expected.

Another issue of grave concern to this agency and to all U.S. fleet operators is that of the future toll structure of the Canal. A May 1977 article in Distribution Worldwide noted that the competition which the maritime industry faces from the land-bridge is substantial. Fifty-one percent of all general cargoes entering and existing through U.S. Pacific ports now move by landbridge systems.

13. Alternatives to Use of the Canal by the U.S. Merchant Fleet.

Discussion under topics 1, 3, and 11 addressed the trade flows through the Canal, its economic advantages and the alternatives to use of the Canal. The U.S. merchant fleet has developed a heavy reliance on the use of the waterway. Ninety-six percent of all U.S.-flag merchant vessels are capable of transiting the Canal, although not all of these vessels normally transit it. In FY 1976 alone, 1,064 Canal transits were made by U.S.-flag vessels.

If the merchant fleet were forced to use alternative routes, a combination of several basic options could be adopted. Oceangoing commerce could be forced to give increasing shares of its cargo to various forms of land-bridge systems. At the present time, more land-bridge facilities exist for break-bulk commodities than for bulk cargoes. A second option would be to steam around Cape Horn with substantial increases in time, distances and risks and drastic reduction of the laydown capabilities of vessel owners. To the extent that U.S.-flag vessels - especially those which have been using the Panama Canal regularly - are forced to reduce their delivery capabilities, revenues needed to cover capital costs would be in short supply. Moreover, where oversized foreign-flag ships are free to compete with U.S.-flag vessels, many U.S.-flag operators would face financial disaster since their U.S.-flag ships were not designed for operation in the waters off the Cape.

14. Potential of other Modes of Transportation to Absorb the Traffic that Presently Transits and is Projected to Transit the Canal

As indicated under topic 3, the Maritime Administration feels that this potential, at present, is very limited in the short run. The Department of Transportation is presently considering a full study of the issue.

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RICHARD E. BRIGGS
Vice President
Economics and Public Affairs

August 17, 1977

The Honorable Ralph H. Metcalfe
Subcommittee on the Panama Canal
Committee on Merchant Marine and Fisheries
The House of Representatives
Washington, DC 20515

Dear Sir:

Thank you for your invitation to testify on the vital interests of the United States in the Panama Canal during the hearings held by your subcommittee on July 25-27, 1977. Unfortunately, as I explained to Coleman J. Conroy of your staff, I was committed to be away from Washington throughout that period. Under those circumstances, I appreciate the opportunity to transmit my comments on certain questions relating to the railroad industry.

Among the questions concerning the economic interests of the United States in the Panama Canal that you submitted to members of Panel No. 2, questions Nos. 3, 13, and 14 addressed the issue of alternative transportation facilities that may exist. In general, the railroads of the United States appear capable of satisfying the transport demands that would be placed on them by a temporary or a permanent closing of the Panama Canal.

American railroads have, in fact, already diverted substantial amounts of traffic that would at one time have moved through the Canal. The development of containerization as a technique for transfering cargo swiftly and economically from ship to rail and from rail to ship has given particular impetus to this shift of cargo from all-water routes utilizing the Canal to joint land-water routes.

These joint rail-water operations have proven themselves capable of serving all kinds of international traffic that would otherwise employ the Panama Canal. "Mini-bridge" is the name that has been given to container operations that employ a transcontinental rail movement in preference to transiting the Canal in moving U. S. imports or exports between the West Coast of the U. S. and Europe, Africa and the Near East or between the East Coast of the U. S. and the Orient. Even containerized cargoes moving between Europe and the Orient are being diverted from the Canal to rail movement across North America. Such operations have come to be known as "land-bridge."

In many instances the service provided by mini-bridge and land-bridge is actually superior to that provided on all-water, trans-Canal routes, and the total cost to the shipper, lower. For example, cargo from Europe to a Pacific

Coast port that takes 19 days by containership through the Canal requires only 13 days going from Europe to an Atlantic port, thence by rail to a Pacific Coast destination. It commonly takes a containership 23-31 days to travel from an East Coast port to Japan by the Canal, versus only 17 days via mini-bridge, a 6-to-14-day saving. Such time savings mean not only better service for shippers but lower costs as well. Even if mini-bridge rates roughly equal all-water rates, as they frequently do, the shorter transit times reduce the inventory cost of goods tied up in transit and loss, damage and pilferage of those goods as well. Mini-bridge can also benefit ship owners through improved utilization of expensive vessels. For example, a ship from the Orient can unload on the West Coast, re-load and return to the Orient in roughly the same time that it would take to use the all-water route via the Canal just to get to the East Coast.

Use of mini-bridge also results in fuel savings. Joint rail-water service between the U. S. East Coast and Japan actually uses fewer BTU's per ton than all-water service between the same points, since the mini-bridge route is some 2,800 miles shorter. Considering the large circuitry inherent in most water movements, the railroads use less energy than any other general freight mode as substantiated in a study supported by the National Science Foundation.

It is cost and service advantages such as these that have already diverted many cargoes from all-water routes using the Canal to rail routes across the U. S. This trend away from the Canal should be of particular interest to the subcommittee in assessing the impact of closing the Canal, for the diversion has occurred voluntarily--not because the Canal route is unavailable, but because the joint water-rail route is preferable.

Unfortunately, available data do not permit quantification of the extent to which mini-bridge and land-bridge arrangements have already diverted international cargoes from the Canal, but there are indications that they are appealing to substantial volumes of traffic. The U. S. railroads' container traffic, most of which is import and export cargo, is a fast-growing category in total railroad piggyback traffic which itself has experienced a 23 percent gain in the past five years. Conversely, total tonnage of oceangoing cargo moving through the Canal fell from a record level of 150 million long tons achieved in 1974 to 141 million tons in 1975 and only 117 million tons in 1976. Traffic Management Magazine recently reported that 51 percent of all cargoes in U. S. Pacific trade in 1975 moved by the railroads' bridge service, thus bypassing the Panama Canal.

The question remains as to the ability of U. S. railroads to handle the traffic demands that might be placed on them were the Canal to be closed to traffic. The railroads would absorb the additional traffic without difficulty in the long run. Even if the entire 117 million long tons (131 million short tons) that transited the Canal in fiscal year 1976 were to be tendered to U. S. railroads, an unlikely prospect, the resulting increase over the 1,406 million tons that the U. S. railroads originated in 1976 would be only 9.3 percent.

It is of course unlikely that all of the traffic presently moving through the Canal would shift to American railroads. Shipments with neither origin or destination in the U. S. would in many cases shift to other all-water routes, such

as around Cape Horn (where a considerable amount of bulk cargoes are now moved in giant vessels), or around the Cape of Good Hope, or through the Suez Canal. Some of the Panama Canal traffic might simply cease to move at all, as consignees turned to other suppliers whose location did not require moving cargoes through the Canal. Canadian railroads would offer another alternative to cargoes that shifted to "land-bridging" across North America, were the Canal to be closed.

Indeed, the traffic most likely to be diverted to U. S. railroads in the event that the Canal were to be closed would be traffic that has either a U. S. origin or a U. S. destination or both. The table below shows the volume of such traffic in fiscal year 1976:

	(long tons)
Origin	
East Coast U. S.	46,407,921
West Coast U. S.	7,395,949
Destination	
East Coast U. S.	20,198,924
West Coast U. S.	8,754,132
Sub total	82,756,926
Less Duplications	4,677,888*
Total: Panama Canal traffic with U. S. origin or destination	78,079,038

*Panama Canal traffic with both U. S. origin and destination is counted twice in the detail, once by origin and once by destination.

These 78 million long tons would, if totally converted to "mini-bridging" on U. S. railroads, cause a 6.2 percent increase in originated tonnage.

The commodities that move in volume through the Canal are pretty much the same as those that move in volume on American railroads. One notable exception is petroleum and petroleum products, the largest category of Canal traffic. The railroads have lost most traffic in liquid petroleum products to pipelines and trucks, so the railroads would be ill-equipped, in the short-run at least, to handle the 22 million long tons of petroleum and petroleum products that moved through the Canal in 1976. (Total rail traffic in petroleum and its products in 1975 was only 45 million short tons.) After petroleum, the principal categories of Canal traffic are (in descending order): grains, coal, iron and steel products, ores and metals, fertilizers, miscellaneous agricultural commodities, lumber and products, canned and refrigerated foods, chemicals and petrochemicals, and machinery and equipment. U. S. railroads presently carry volumes many times larger of each of these commodities.

While the railroads should have little difficulty in meeting the demand of this additional traffic after an adjustment period of one to two years, the ability of the railroads to handle immediately the large surge that might result from a sudden, unanticipated closing of the Canal is more open to question. Two bottlenecks would probably occur if the Canal were to be suddenly closed and freight traffic tendered to U. S. railroads were to increase seven percent or so. First, there would be temporary shortages of equipment, freight cars and locomotive power. It would seem likely, however, that some of the sudden surge in damand could be accommodated with the existing fleet by improving its utilization. Average freight car utilization rates, for example, are considerably lower today than at times in the past. To the extent that additional freight cars and locomotives are required, the current lead time from order to delivery for freight cars is about 3-4 months and 4-5 months for locomotives. Further, freight car production in recent years has been substantially below the productive capacity of U. S. freight car builders. Thus, the potential for improved car utilization plus the capability of the car builders and locomotive manufacturers to bring about a fleet expansion would alleviate the temporary shortages within a few months.

A large portion of oceangoing traffic is containerized. Consequently, much of the surge in demand that would accompany a closing of the Canal would be concentrated on container-carrying flat cars. Temporary shortages of flat cars might, therefore, occur. However, even this shortage could be avoided by organizing "unit trains" of flat cars that could be shuttled rapidly back and forth between Atlantic-Gulf and Pacific Coast ports, thereby achieving much higher rates of utilization.

The more serious bottleneck that might occur is at U. S. ports. Many U. S. ports and the railroads serving those ports have made large investments in recent years to modernize and expand the capacity of those ports, partly in response to the growing popularity of land-bridge and mini-bridge arrangements. Nevertheless, the surge in traffic that might result from a sudden closing of the Canal could overtax the capability of those ports, leading to temporary congestion and delays.

The willingness of the railroads and the ports to expand their fleets and their cargo-handling capacity in response to a closing of the Canal would be greatly influenced by whether the closing were understood to be temporary or permanent. It would be poor economic sense for either to invest large sums to expand capacity if the Canal closing were seen as only temporary or some alternate route across the Isthmus of Panama were to be developed.

Beyond the temporary problems of car shortages and port congestion, there is no question as to the ability of the railroad route network to handle an 8-10 percent increase in throughput. It is widely held that the railroad network has the capacity for carrying twice as much traffic as at present.

The ability of the railroads to meet a sudden surge in demand was dramatized during the build-up for World War II. In just one year, 1941, railroad ton-mileage jumped 27 percent over the pervious year to a record high level. In 1942, it grew an additional 34 percent in just one year. Then in 1943, it grew still another 14 percent. More recently, it grew 15 percent in the 1973-1974 period.

In sum, the physical volume of cargo moving through the Canal would present no unmanageable demands on U. S. railroads, even in the most unlikely event that 100 percent of it were to be diverted to the railroads if the Canal were closed. There is adequate capacity in the route network to handle an even greater surge in demand. Car utilization could be sufficiently increased in an emergency to accommodate the additional priority cargoes, with the probable exception of petroleum and petroleum products. If additional cars and locomotives were needed, the lead time for their production would not exceed six months. Bottlenecks, were they to exist, would probably occur at the ports. The railroads' performance during the World War II build-up provides comforting evidence that the railroads could respond even to a sudden closing of the Canal in stride.

If we may provide additional information or assistance to you or your committee, please let us know.

Sincerely,

Richard E. Briggs

REB/ALM/bsw

Prepared by: W. M. Whitman

Kensington, Maryland August 8, 1977

VALUE OF THE PANAMA CANAL AND RELATED PROPERTY

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WMWhitman
August 1977

VALUE OF THE PANAMA CANAL AND RELATED PROPERTY

A. Introduction

The term "value" as applied to the Panama Canal and related property does not have a fixed meaning. The content of the term depends on whether the subject under consideration is (1) the physical property, such as real estate, buildings, structures, and other assets; (2) the amount of the investment of the taxpayers' funds in the enterprise; (3) the measure in dollars of the usefulness of the waterway as a means of saving or producing money; or (4) the intangible value of the canal to the United States representing a combination of the monetary value and usefulness of the canal for national defense, the furtherance of national goals and the promotion and regulation of foreign and domestic commerce.

All these concepts of value are important and relevant to the exercise by the Congress of its constitutional powers to regulate commerce (Art. I, Sec. 8) and to "dispose of and make all needful rules and regulations respecting the territory or other property belonging to the United States." (Art. IV, Sec. 3, Cl. 2)

These concepts are subject to refinement, distinctions, and qualifications adopted for the particular requirements under consideration at any given time. In sense (1) referred to above, value means the equivalent in money of the physical assets. That value may be expressed as "book value," "original cost," "market value," "reproduction costs" or by any other of the familiar terms appropriate in the sale or other transfer of property or in public utility regulation.

On the other hand, in sense (3) referred to above, the "value" of the Panama Canal and related property is somewhat different from the several separate perspectives of the United States as owner; the users of the canal and to some extent the sub-categories of users, such as shipowners and operators, buyers or sellers of cargoes that move through the canal, the countries or regions affected by the movement of such cargoes, etc.; and the Republic of Panama through which the canal passes.

This calculation of the value of the canal in terms of its revenue producing or conserving capability is closely related to the rates of tolls assessed for the use of the canal, another subject presently within the control of the Congress in the exercise of its power to make rules and regulations concerning the property of the United States.

The value of the canal in the fourth sense is a matter of judgment that requires the assessment of the usefulness of the

canal as an instrument of national policy in relation to available alternatives. This process does not produce an answer in terms of dollar value; it requires a choice between options in terms of consequences to national goals that are no less real because they cannot be shown on a balance sheet or be reduced to the precision of a mathematical formula. Both the value of the physical assets and the "economic value" of the canal enter into this process, but perhaps more important are considerations of the overall effect on economics, national defense, and international relations of the arrangements made for operation of the canal.

B. Asset Value

1. Book value of assets of the Panama Canal Company and Canal Zone Government.

The value of the property, plant and equipment and other assets of the Panama Canal Company and Canal Zone Government are shown in the annual financial statements and reports of those agencies.

The value of property, plant and equipment and the value of other assets as of June 30, 1976 were are follows: 1/

(Millions of Dollars)

	Property, Plant & Equipment				
	Cost	Depreciation	Net	Other Assets	Total
PCC	$864.6	$231.8	$632.8	$ 81.0 2/	$713.8
CZG	108.3	46.9	61.4	21.9 3/	83.3
Totals	$972.9	$278.7	$694.2	$102.9	$797.1

1/ See annual reports for 1976, pp. 30, 138. Valuation allowances shown on the books of the PCC and CZG to arrive at value of plant for tolls purposes have not been excluded in this table. See notes to financial statements at pages 32 and 143 of the annual reports.
2/ Annual report, 1976, p. 26
3/ Annual report, 1976, p. 138

2. Effect of inflation.

Book value does not fully disclose the real value of the Panama Canal in terms of 1977 dollars, since investment by the U.S. Government occurred in 1904 and subsequent years. A more realistic description of the value of the property would take into account the effect of inflation. An effort to state the accounts in that manner is shown in the annual report of the Panama Canal Company for fiscal year 1975, p. 37. In terms of today's dollars the value of the assets of the Panama Canal Company exclusive of the assets of the Canal Zone Government and military departments, would appear to be about $1.1 billion.

3. Market value.

The practical effect of inflation can be determined by appraisal of the current market value of physical properties. When this procedure was followed on the transfer of real estate to Panama 20 years ago, the market value then was found to be about four times greater than the book value.

Article V of the 1955 treaty with Panama (TIAS 3297) provided that subject to enactment of legislation by the Congress, certain lands owned by the United States in Panama and in the Canal Zone would be conveyed to Panama when and as determined by the United States to be no longer needed for the operation, maintenance, sanitation or protection of the Panama Canal or its auxiliary works. The Act of August 30, 1957, (Pub. Law 85-223, 71 Stat. 509) authorized the conveyance of the lands in question and provided that the "market value" of the property should be removed from the capital investment of the United States in the Canal Zone Government or deducted from the interest bearing investment of the United States in the Panama Canal Company. An appraisal of the property conveyed pursuant to this legislation established its market value at $22 million although the book value shown in the accounts of the Panama Canal Company and Canal Zone Government was $5.1 million. See Weller, Valuation of Certain Properties of the Canal Zone Government and Panama Canal Company, etc., Jan. 18, 1958; and H.Rept. No. 778, 85th Cong., to accompany H.R. 6709, Implementing a Treaty and Agreement with the Republic of Panama.

A discussion of the effect of use of market value or book value in reflecting property transfers pursuant to the 1947 General Relations Agreement between the U.S. and Panama appears in the Hearings on H.R. 6709 before the Panama Canal Subcommittee of the House Committee on Merchant Marine & Fisheries (85th Cong.) at pages 8-15.

4. Military assets.

The values shown on the books of the Panama Canal Company and Canal Zone Government for Panama Canal assets do not include the value of the substantial assets of the Department of Defense in the Canal Zone. These values are indicated to some extent by the amount of investment for defense shown below in the discussion of investment of the United States in the Panama Canal.

C. United States Investment

Analysis of the unrecovered investment of the United States in the Panama Canal enterprise, including expenditures for defense, show a total gross investment of $2.8 billion for the Panama Canal enterprise, exclusive of military expenditures, recoveries by the U.S. Government of $1.9 billion. (Appendix A.) Expenditures for protection and defense of the canal from 1904 through 1974 were reported in 1974 to have been $5.3 billion. (120 Cong. Rec. H. 11357, Dec. 5, 1974).

D. Economic Value

1. Studies of economic value.

There have been several efforts to arrive at the economic value of the Panama Canal in terms of a measure in dollars of the usefulness of the waterway as a means of savings or producing money. These studies include the following:

a. Arthur D. Little & Co. (ADL)
b. Atlantic-Pacific Interoceanic Canal Study Commission (1970) (IOCSC)
c. United Nations Economic Commission for Latin America, Panama Canal Revenues & Estimated Savings to Users (1971) (ECLA)
d. International Research Associates (Howell & Solomon) The Economic Value of the Panama Canal (1973) (IRA-HS)
e. International Research Associates (Brandes) The Economic Value of the Panama Canal--An Addendum Concerning the Short Term Value of the Canal (1974) (IRA-B1)
f. Maritime Administration, U.S. Department of Commerce, The Panama Canal in U.S. Foreign Trade--Impact of a Tolls Increase and Facility Closure (1974) (MARAD)

g. International Research Associates (Brandes) Critique and Evaluation of the Panama Canal in U.S. Foreign Trade (1974) (IRA-B2)
h. Gibbs, Multiobjective Analysis of the Panama Canal: The Value of a Marine Transportation System (Ph.D. Thesis submitted at M.I.T.) (1976) (Gibbs)

2. Theory of "economic value."

As suggested in a recent book on the Panama Canal 1/ the economic value of major enterprises is currently regarded by economists as equal to the monopoly profits the enterprise could realize independent of what is actually charged. The major studies of economic value agree that the measure of the maximum profits that can be realized is the cost of obtaining alternate or substitute service or making other marketing arrangements. In other words when the users of the canal are able to move goods by an alternate route or make marketing arrangements that cost less than use of the Panama Canal, they will use the alternate route or marketing arrangement.

The "economic value" is stated in terms of the difference between cost of providing the service and the cost of alternatives. The difference between the cost to the user (i.e., tolls payments) and the cost of alternatives is described as "user surplus." The difference between the amount of tolls revenue and the cost of providing the service is the owner's profit or loss.

Obviously, the concept of value is somewhat different for the owner and the users of the canal because of the function of tolls charges. The owner's profit is enhanced by increasing tolls to the maximum limit marked by the cost of alternative routes or business arrangements making the use of the canal unprofitable. On the other hand, the "user surplus" is reduced by increases in tolls that narrow the difference between the cost of using the canal and the cost of alternatives.

Of course, the United States as owner is also involved as a user of the canal, and the economy of the United States and the economies of other user nations are affected by changes in tolls rates that necessarily to some extent affect the prices of goods with some economic consequences, however small. For a discussion of the effect on U.S. prices of the recent 1976 increase in Panama Canal tolls, see Report of the Panel on Proposed Changes in Rates of Tolls for the Panama Canal, An Addendum Concerning Effect on U.S. Economy of Proposed Increase in Tolls, Oct. 20, 1976.

1/ Padelford & Gibbs, Maritime Commerce and the Future of the Panama Canal, pp. 182-3 (1975) This book did not undertake an independent estimate of the economic value of the canal, although it discussed various components of the formula.

The Republic of Panama also is involved in the economics of the canal operation in different ways -- as a user of the canal, as the beneficiary of certain inputs into Panama's economy from sales to ships, employment in connection with operation of the canal, the payment of the annuity specified in the treaties between the United States and Panama. Income to Panama as a result of the operation of the canal in 1976 was estimated at $243.2 million, down from $253.1 million in 1976. (Appendix B.) These payments represent a substantial percentage of Panama's gross domestic product of $1.7 billion in 1974. 1/

Panama also benefits from the United States interest in the Panama Canal as the recipient of payments under various external assistance programs of the U.S. Government. The total of outstanding loans by the U.S. Government under these programs as of March 1977 was $159 million.2/ These loans are exclusive of those made by the Export-Import Bank, IBRD, and IADB.

In the course of treaty negotiations to supersede the 1903, 1936 and 1955 treaties between the United States and Panama, Panama has expressed dissatisfaction with the benefits derived from the Panama Canal under the present arrangements and has asserted a right to receive the amount of the difference between cost of operation of the canal and the cost of alternatives to users of the canal. The Arthur D. Little study of the maximum revenue potential of the canal made for Panama, and the ECLA study of economic value of the canal are cited extensively by Panama in support of the contention that it should receive substantially increased payments in the hundreds of millions of dollars a year during the remaining period of operation of the canal by the United States under the proposed treaties. 3/

3. Elements of economic value.

As indicated by the foregoing discussion, the basic elements in calculating the theoretical "economic value" of the Panama Canal are:

a. The volume of traffic through the canal
b. The rates of tolls for use of the canal
c. The sensitivity of the several segments of traffic to increases in rates of tolls as determined by the cost of alternative arrangements
d. The time frame of the estimate

1/ Foreign Economic Trends and Their Implications for the United States: Panama (1976) U.S. Department of State
2/ Foreign Credits by the United States Government, March 31, 1977, Office of Assistant Secretary for Economic Policy, U.S. Treasury
3/ The Washington Post, August 4, 1977, p. A-7

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The underlying basic element in comparing the cost of use of the canal with alternative arrangements is the reduction in the length of the voyage on certain trade routes by use of the canal. The use of alternate routes anticipated as a result of the 1976 tolls increase is discussed at some length in the Environmental Assessment of Proposal to Increase Tolls, 1976 (Whitman). Appendix C of the Environmental Assessment showing the comparative distances via the Panama Canal and alternate routes is attached. (Appendix C.) Of course, when voyage costs through the canal, including tolls for use of the canal, exceed voyage costs for the longer route, it is reasonable to assume that in most cases, the less expensive route will be used. Under the "economic value" theory, such increases in tolls decrease the "user's surplus" value of the canal as the cost of using the canal approaches the cost of using alternative routes and marketing arrangements. When tolls are increased to a level that results in increasing the cost of using the canal to a point exceeding the cost of using the alternatives, the economic value of the canal to the owner as well as to the user falls to zero.

An example of application of the theory of "economic value" of the canal to the intercoastal operations of a steamship company using the canal, is found in the 1976 proceedings by the Panama Canal Company to increase tolls for use of the canal. The cumulative effect of the 1976 increase, a prior increase in 1974 and changes in the measurement rules in 1976, was to increase the rate of tolls paid by the container ships of the company in question about 32.2%. At the hearing on the tolls increase, the company argued that this increase would result in a diversion of cargo from their intercoastal movements to rail transportation across the United States. Based on cost data submitted in another proceeding before the Federal Maritime Commission, however, it appeared that the cost of movement of a container of cargo from the west coast to the east coast of the United States after the proposed increase would be $725 in comparision to $783 for moving the container across the United States by rail. Based on the use of the canal by the ships of the company in question during the preceding year, this cost differential produced a "user's surplus" of about $2.5 million for the company on its intercoastal traffic through the canal. 1/

1/ See Report of Panel on Proposed Changes in Rates of Tolls for the Panama Canal, PCC, Sept. 13, 1976, pp. 22-25. Although after the higher rate of tolls had been approved, the steamship company objected to the calculation of comparative costs, no other cost data were submitted. For a discussion of the sensitivity to tolls increases of Panama Canal cargo movements on various trade routes, see the Report of the Panel, pp 12-28.

Estimates of "economic value" of the canal vary in accordance with different assumptions and data employed in the calculation of the cost of using the canal and the cost of alternatives. It is also appropriate to note that the estimate of value in any given study will prbably be influenced to some extent by the purpose of the study. All the major studies agree that the limit on the tolls rates is the cost of alternatives, but the data and methodology used by each of the studies for calculating the various components of the basic cost comparison are widely divergent and the final result of the study is no better than the quality of the data used in the calculation.

4. Estimates of economic value.

The estimates of "economic value" of the canal in the sense discussed in the preceding paragraphs resulting from the various studies are shown below. All these estimates must be qualified by considerations of (1) price and cost increases since the studies were made; (2) the reliability of the data used as the basis for the estimates; and (3) the purpose for which the estimate was made.

a. Arthur D. Little & Company.

The ADL estimate was based on the traffic through the canal in fiscal year 1963, when tolls paid for the use of the canal totalled about $58 million. The study concluded that the economic value of the canal in that year was equal to 300 per cent of the total tolls collection at the then applicable rates of 90 cents a ton on laden vessels and 72 cents a ton on ships in ballast, or $174 million.

The objective of the study was to estimate the rate of tolls that would provide the maximum amount of tolls revenue on a short term basis.

b. Interoceanic Canal Study Commission

The objective of the IOCSC study laid down by the legislation authorizing the study was to determine the feasibility of and the most suitable site for construction of a sea level canal connecting the Atlantic and Pacific oceans. (Act, Sept. 22, 1964, 78 Stat. 990). After the enactment of this legislation, President Johnson announced that the United States was willing to negotiate a new treaty with Panama to replace the 1903 treaty and in that announcement referred to the need for a sea level canal to replace the existing canal, the life of which, the announcement said, was limited. (See Report of IOCSC, p. 1). While the Commission was

completing its work the treaty negotiators for the United States and Panama reached agreement on three new treaties, one for continued operation of the existing canal, a second providing for United States rights to build and operate a sea level canal in Panama, an a third for defense of the existing canal and the proposed sea level canal. However, none of the treaties was signed; in fact, all were formally rejected by the Government of Panama. (See, Report of IOCSC, p. 2).

The report of the IOCSC recommended that construction of a sea level canal in Panama be initiated no later than 15 years in advance of the estimated saturation date of the present canal, then projected to occur during the last decade of this century. (Report of IOCSC, p. 109, par. 4).

The IOCSC report did not include an estimate of the "economic value" of the canal as such (i.e., the excess of revenue potential over costs) but the report and the conclusions of the Study Group on Canal Finance (Annex III) and on Interoceanic and Intercoastal Shipping (Annex IV) did arrive at conclusions that make possible rough approximation of "economic value" based on the assumptions used in the report. The IOCSC report estimated that the capacity of the present canal (with planned improvements the cost of which was then estimated at $93 million) would be 300 million cargo tons, and that this capacity would be reached during the last decade of this century. (p. 105). The rate of tolls in effect at the time of the report ($.90 per Panama Canal ton for laden vessels and $.72 for vessels in ballast) was converted to a cargo ton rate of $.884 at the time of the study, declining to $.777 a cargo ton in the year 2000 because of changes in the ship mix using the canal (p. III-14). Multiplying the projected traffic of 300 million long tons by this rate per ton produces tolls revenue of $265.2 million at the $.884 rate and $233.1 at the $.777 rate.

The report of the shipping study group (Annex IV) considered that a 50% increase in rates of tolls over the "effective rate per cargo ton" then in effect would produce 50% more revenues for a future canal that could accomodate ships of at least 200,000 DWT, and that "higher increases in tolls rates may be possible but estimating the response by users to increases in tolls of the magnitude necessary to obtain much higher revenues is probably beyond the scope of economics or any other discipline." Although the shipping study noted that traffic through the existing lock canal is more sensitive to increases in rates of tolls than a sea level canal (P. IV - 97) the 50% estimate of the feasible limit on tolls increases is consistent with the subsequent conclusions of the studies of sensitivity made for the Panama Canal Company by International Research Associates.

Assuming such a maximum increase, the figures used in the IOCSC report would produce maximum additional revenues of from $106 million a year ($265.2 X 40%) to $93.2 million a year ($233.1 X 40%) or total maximum tolls revenues of from $371.2 a year to $326.34 a year, depending on the ship mix.

Operating costs were estimated at $79 to $92 million over the period 1971 to 2000, depending on the ship mix (Finance Study Group, p. III-11) so that a rough calculation of "economic value" on the basis of the assumptions and projections in the IOCSC study would be from $247 to $279 million a year.

c. Economic Commission for Latin America

The ECLA study was made in 1971 when the latest operating results of the Panama Canal were those for the year 1970 when tolls revenues were $101 million. The study concluded that compared to Panama Canal revenues of $757.1 million from 1960 to 1970, projected to rise to $1,105.2 million in the following decade under the existing tolls system, the maximum potential revenue estimated for 1960 to 1970 was $2,600 million and $3,600 million for the following decade, an increase of 230 per cent. (p. 4). The report estimated that revenues could be increased to a level rated in this study as "maximum potential revenue" equal to more than three times the present revenues (3.3 times). Although it was conceded that it might not be advisable in practice to reach that level (p. 3), the report also concluded that the present toll structure is inadequate to obtain the maximum revenue or "reasonable revenues from Panama's point of view." (p. 4). 1/

The ECLA study was based on the 1970 ERA traffic projections of 140 million tons of cargo in 1980. (p. 30, and Table 9, p. 28).

d. International Research Associates studies

The 1973 IRA study by Howell and Solomon estimated the economic value of the canal at $80 million a year in 1975, rising to $141 million in 1985, with an average value of about $100 million for each of the ten years. The economic value of the canal for the 10-year period was estimated at $1 billion.

The estimates were based on the 1970 projections of 140 million cargo tons in 1980 and 168 million tons in 1985, contained

1/ The ECLA study was apparently made to support efforts of the Republic of Panama to obtain more revenue from the canal. In an address on December 12, 1972, Dr. Jorge Ilueca said "the Panamanian Foreign Ministry . . . was able to obtain from the Economic Commission for Latin America . . . a highly technical and moral study in which . . . the maximum potential revenue and the actual canal revenue for 1960-1980 is emphasized."

in the study made for the Panama Canal Company by Economics Research Associates in 1970. 1/

The 1974 Addendum (Brandes) reestimated the first year economic value at $367 million instead of $80 million. The IRA studies estimate that the United States' share of the "user surplus" is about 34%. (Note: The IRA studies were prepared before the increase in the price of bunker fuel as a result of action by OPEC, and consequently, the cost of alternatives and hence the economic value are understated.)

e. Maritime Administration study

The MARAD study estimated that an increase of 50% in the then prevailing rates of tolls would result in losses of .2 per cent in export revenue and increase import costs by $12.5 million. It was estimated that tolls increases of 100 and 200 per cent would double or quadruple that revenue loss.

The study has been criticized as involving factual and technical errors. See Brandes, Critique and Evaluation of the Panama Canal in U.S. and Foreign Trade, (1974).

f. Gibbs' "Multiobjective Analysis..."

The Gibbs doctoral dissertation estimated the net 1975 economic benefit at $1.7 to $1.9 billion. The estimated net present aggregate consumption value of the Panama Canal at discount rates of 5% to 10% is estimated at $6.86 billion and $5.44 billion, respectively. (p. 201).

Before discounting to arrive at present worth the Gibbs thesis arrived at an estimate of total gross benefit of $491 million in 1985 based on a projection of 181.75 million cargo tons of Panama Canal traffic in that year. This figure is generally comparable to the economic value estimated in the IRA studies. 2/

As the title indicates, the purpose of the Gibbs thesis is to demonstrate the use of multiobjective analysis as applied to the Panama Canal problems in the light of U.S. objectives of economic welfare, national security, foreign policy and hemisphere defense. The estimate of the economic value of the canal was a major part, but only one part, of the purpose of the thesis. The thesis emphasizes throughout that its conclusions are preliminary and rough and depend entirely on the assumptions made in the development of the data used.

1/ Economics Research Associates, Los Angeles (1970) Projections of Panama Canal Commodity Flows, Transits and Tolls Through 1985. An updated study by ERA in 1976 projects that the cargo tonnage in 1979 will be 140 million tons.

2/ Gibbs, 181-189

E. Intangible Value

1. The concept of "intangible value."

The composite value of the canal referred to here as "intangible" comprehends not only the concept of asset value, investment cost and "economic value" discussed above, but includes as well the value of the installation for national defense and furtherance of other national goals such as the regulation of commerce and the promotion of the interests of the United States in foreign affairs, as they are perceived at any given time.

The various elements of this composite value have been frequently and widely discussed. 1/ The 1970 report of the Interoceanic Canal Study Commission represents a major effort to identify the various elements that contribute to the overall value to the United States of a transisthmian canal. 2/

The composite intangible value of the canal in terms of national objectives is not susceptible of meaningful statement in terms of dollar value. Efforts to price out these intangible values in terms of what the United States would be willing to pay for a new facility to replace the canal in order to further these objectives are interesting exercises but in the end represent the judgment of the individual controlling the calculation as to the relative importance of the objectives under consideration.

Although the intangible value of the canal, in the sense used here, is not quantifiable, it is susceptible of measurement

1/ See, for example, Padelford, The Panama Canal in Peace and War, Macmillan (1942): Maechling, The Panama Canal; A Fresh Start, OBRIS, Vol 20, No. 4, pp 1007 et seq, Foreign Policy Research Institute and Fletcher School of Law and Diplomacy, Tufts Univ. (1977). See also the extensive debates in the Congress on canal issues preceding the construction of the Panama Canal. A bibliography of Congressional documents and enactments concerning the canal is published as Appendix 1 to a Report on the Problems Concerning the Panama Canal by Chairman and ranking minority member of the Panama Canal Subcommittee of the Committee on Merchant Marine & Fisheries, House of Representatives, 91st Cong., 2nd Sess.

2/ Atlantic-Pacific Interoceanic Canal Studies, 1970, U.S. Government Printing Office. Detailed analysis of the relation of the Panama Canal to the various objectives of the U.S. Government were incorporated in the reports of the several working groups set up by the Commission to study Foreign Policy Considerations, National Defense Aspects, Canal Finances, Interoceanic and Intercoastal Shipping, and Engineering Feasibility. The reports of these studies are published as Annexes to the report.

in terms of comparison with the importance and urgency of other national objectives. This kind of value judgment between competing rights and interests is a familiar concept in American law. 1/ The determination of the impact of federal programs on the quality of the human environment as required by the National Environmental Policy Act, 1969 2/ is a striking illustration of determining the relative values of intangible, non-quantifiable national interests. 3/

2. Defense Value.

Although it is generally conceded that a transisthmian canal is not indispensible to the defense of the United States, it is generally recognized that the canal and the installations constructed in the area under the control of the United States are of major importance to the national defense. 4/ In addition to the use of the waterway for movement of naval vessels and other ships moving personnel, material and supplies in support of the armed forces, extensive installations in the area under U.S. control adjacent to the canal such as operational airfields, aircraft repair facilities, dry docks, machine shops and ship repair facilities are all of obvious value to the national defense.

3. Regulation of Commerce.

Apart from the tangible value of the physical properties of the canal and its capability to produce income for the owner or cost savings for users, the canal has an intangible value as a part of the U.S. transportation policy and as an instrument for the regulation of foreign and domestic commerce. 5/

As frequently pointed out, the United States has chosen to operate the canal on a cost recovery basis. This policy, encouraging the maximum use of the canal by ships of all nations, has a ripple effect on foreign and domestic commerce and the various segments of the economy related to that commerce including levels of employment and allocation of economic activity as

1/ The assessment of the appropriateness of individual conduct in relation to the standard of reasonableness in the law, and the selection of one or another of competing constitutional rights and privileges are familiar examples.
2/ 42 U.S.C. 4322 (2)(c)
3/ See Environmental Assessment of Proposal to Increase Tolls, Panama Canal Company, April 1976; Commonwealth of Pennsylvania v. Federal Maritime Commission, 392 F. Supp. 795 (DDC 1975)
4/ See Testimony of Brig. Gen. I.P. Graham, USAF, Organization of Joint Chiefs of Staff, and of Col. John P. Sheffey, USA(Ret.) Former Executive Director, Altantic-Pacific Interoceanic Canal Study Commission, before Panama Canal Subcommittee, Committee on Merchant Marine & Fisheries, at a hearing on July 26, 1977. See also, Report of APIOCSC, 1970, Annex 2, Report of National Defense Study Group, pages II-1 et seq.
5/ State of New York ex rel Rogers v. Graves, 299 U.S. 401 (1937)

between cities, industries, and different areas of the country. This ripple effect is not quantifiable, but it is no less real, and on the positive side at least it represents a value of the canal to the areas of the country and of the economy that are benefited by use of the canal. 1/

The intangible relationship between Panama Canal tolls and national transportation policy is recognized in the requirement of the statute that changes in tolls be approved by the President of the United States before they take effect.2/ The intangible value of the canal as a going concern is also strikingly illustrated by the recent decision of the President to move north slope Alaksan oil from Valdez to the east coast of the United States via the Panama Canal although the cost of alternative arrangements appears to be less than use of the canal. 3/

4. Foreign Relations.

The role of the canal in the foreign policy objectives of the United States has always been of major importance. In the nineteenth century, it was considered that a transisthmian canal under control of the United States was essential to forestall the construction and control of the canal by a European power.4/ During the past twenty years new foreign policy objectives of stablizing and improving relations with Panama and the other countries of Central and South America have been regarded as paramount, and the arrangements undertaken to achieve those objectives also illustrate the intangible value of the canal as an instrument of foreign policy. 5/

1/ See arguments in opposition to the 1976 tolls increase by International Longshoremens Association, AFL-CIO, and Council of North Atlantic Shipping Associations, Report of Panel on Proposed Changes in Rates of Tolls, App. A., p. 5. See also analysis of similar contentions in Draft Environmental Impact Statement, FMC Docket 73-38, pages 100-103.

2/ 2 C.Z. Code 411. See H.Doc. 460, 81st Cong., 2nd Sess, p. 16.

3/ See Statment of Margaret D. Hayes, CACI Inc., before Panama Canal Subcommittee, Committee on Merchant Marine & Fisheries, House of Representatives, on July 25, 1977, pp 2-4 to 2-6.

4/ See 3 Whiteman, Digest of International Law, Department of State Publication No. 7737, p. 1229.

5/ See Department of State Bureau of Public Affairs, Office of Media Services, Current Policy No. 9, Nov. 1975. The relationship of the canal to the current foreign policy of the U.S. and the value of the canal in reference to other national objectives is carefully and objectively reviewed in a recent address by Cong. Metcalfe, Chairman, Panama Canal Subcommittee, Committee on Merchant Marine & Fisheries. See 123 Cong. Rec. H. 4725, May 19, 1977.

F. Summary

The term "value" as applied to the Panama Canal and related property does not have a fixed meaning. Depending on the sense intended it may refer to (1) the value of physical properties; (2) the amount of the investment of the United States in the canal; (3) the "economic value" or measure in dollars of the usefulness of the waterway as a means of saving or producing money; or (4) the "intangible" value of the canal and its appurtenances as a going concern representing a composite of the monetary value and the usefulness of the canal for furtherance of national goals.

The asset value of the Panama Canal Company and Canal Zone Government, exclusive of military installations, has a book value of some $797 million. Giving effect to inflation, the book value of the assets of the Panama Canal Company alone would be over $1 billion and the market value of the real estate owned by the United States in the Canal Zone is probably about four times the book value.

The United States has invested some $2.8 million in the Panama Canal, exclusive of appropriations for defense of the canal which totalled some $5.3 billion from 1904 to 1974.

The "economic value" of the canal is a calculation of the difference between cost of operation of the canal and the cost of using alternative arrangements. From the standpoint of the owner of the canal (presently the United States) the cost of alternative arrangements determines the potential revenue from tolls for use of the canal, and the difference between cost of operation and the tolls revenue collected is the "owner's profit." From the standpoint of the user, the difference between the amount of tolls actually charged and the cost of using alternative arrangements is the amount of the economic benefit to the user, generally called the "user's surplus." Obviously the interests of the owner and those of the user are antithetical insofar as the owner follows a policy of increasing tolls charged for use of the canal above the level of actual cost of operation. Under the controlling Congressional policy expressed in the statute, the United States now operates the canal substantially on a break-even basis, thereby producing maximum benefits to the user. Under a policy of maximizing or substantially increasing revenues from tolls, the theoretical limit on such increases is the cost to the user of making alternative arrangements. When the cost of using the canal exceeds the cost of alternative arrangements, the "economic value" of the canal to owner and to user falls to zero.

The United States stands in differing relationships to the economic value of the canal as owner and as a user for movement of its commerce. The interest of the United States in the "user surplus" of the canal is estimated at about one third of the total.

The Republic of Panama also stands in a dual relationship to the economic value of the canal as a user and as the recipient of substantial payments into its economy from employment, sales to ships, and the sale of services and supplies to the U. S. Government agencies as a result of the location of the canal and the treaty relationship between the U.S. and Panama. The amount of the income to Panama from the canal operation in 1976 was estimated at $243 million and the amount of loans to Panama by the United States Government (exclusive of loans from international banks) has been reported to be $159 million.

Various studies have been made for the purpose of assessing the "economic value" of the canal. The results of these studies depend on the validity of the assumptions made regarding future traffic through the canal, the future cost of operating the canal, and the future cost of alternatives to the use of the canal. These results are expressed either in terms of the maximum possible increase in rates of tolls over the rates in effect when the studies were made or in terms of total maximum tolls revenues. All studies agree that a change in the tolls system would be necessary to achieve the maximum revenue potential of the canal, requiring increases variously estimated at 50 per cent to 300 per cent over rates of tolls at the time the studies were made.

The "intangible value" of the canal is by its nature not quantifiable and requires the exercise of judgment in identifying the usefulness of the canal in the attainment of national objectives such as national defense, the regulation of foreign and domestic commerce and the furtherance of foreign policy. These objectives change from time to time and the intangible value of the canal in this sense may be the antithesis of "economic value" in that the use of the canal may be more costly in dollars than the use of alternatives deemed less satisfactory for the achievement of the particular objective involved in a given instance.

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PANAMA CANAL ENTERPRISE

Unaudited summary statement of funds and property received by the Panama Canal enterprise from the U.S. Government, interest costs thereon payable to the U.S. Treasury and funds repaid to the U.S. Government by the Panama Canal enterprise from inception to June 30, 1976. The Panama Canal enterprise consists of the Panama Canal Company, the Canal Zone Government, and their predecessor agencies. The enterprise does not include military or other Federal agencies located in the Canal Zone.

	July 1, 1951	June 30, 1976
	(Millions of dollars)	
Gross investment of U.S. Government		
Funds and property transfers (1)	$1,013.9	$1,974.0
Interest on net investment of U.S. Government:		
From inception to June 30, 1951 (2)	373.4	373.4
From July 1, 1951 to June 30, 1976:		
Panama Canal Company (3)	-	269.1
Canal Zone Government and Thatcher Ferry Bridge (4)	-	51.4
Earned capital reinvested	71.1	175.4
Total gross investment of U.S. Government	$1,458.4	$2,843.3
Recoveries by the U.S. Government		
Deposits and deposit credits from all sources (5)	784.6	1,915.9
Total unrecovered balance	$ 673.8	$ 927.4

Prepared: October 1976
ource : Reports and Analysis Staff

APPENDIX A-1

PANAMA CANAL ENTERPRISE

1.	FUNDS AND PROPERTY TRANSFERS	
	(a) Funds appropriated directly for the enterprise:	
	Original construction	$ 386,910,301.00
	Maintenance, operation, and additional capital expenditures	1,459,070,294.84
		1,845,980,595.84
	(b) Funds appropriated for other U.S. Government agencies for the direct benefit of the enterprise:	
	Construction annuity to employees (and their widows) engaged in the construction of the Canal	51,868,467.31
	Increased annuity to Panama	32,556,992.00
	Annuities to employees retired prior to July 1, 1951	15,091,000.00
	Salaries of military personnel assigned to the Canal prior to July 1, 1951	9,307,002.00
	Injury and death payments, Bureau of Employees' Compensation	5,929,664.82
		114,753,126.13
	Total appropriations	1,960,733,721.97
	(c) Property transferred from other U.S. Government agencies	20,809,423.61
	(d) Property transferred to other U.S. Government agencies	7,579,600.10
	Total property transfers, net	13,229,823.51
Total funds and property transfers		$1,973,963,545.48
	INTEREST ON NET DIRECT INVESTMENT	
2.	From inception to June 30, 1951: Interest at 3% to August 14, 1914 and at individual annual rates thereafter, (as determined by the Secretary of the U.S. Treasury) has been calculated on net withdrawals (total appropriations less deposits of Canal tolls and other deposits) from 1904 to 1951	$ 373,442,937.50
3.	From July 1, 1951 to June 30, 1976: Panama Canal Company: Interest at rates from 1.95% for fiscal year 1951 to 5.199% for fiscal year 1976 (as determined by the Secretary of the U.S. Treasury) has been calculated on the Company's net direct investment, established in accordance with Section 62 of Title 2 of the Canal Zone Code, charged to Company operations and subsequently deposited into the U.S. Treasury as miscellaneous receipts, as required by law	$ 269,080,331.35

PANAMA CANAL ENTERPRISE

4. Canal Zone Government and Thatcher Ferry Bridge:
Existing law specifically exempts the net direct investment of the Canal Zone Government and the Thatcher Ferry Bridge from interest charges. However, it is considered that this element should be included in arriving at the unrecovered investment of the U.S. Government in the Canal enterprise.

The interest cost reflected herein has been calculated at the same rates used for the Company as shown under paragraph 3 above, on the net direct investment of the C. Z. Government and Thatcher Ferry Bridge as of June 30 each year through June 30, 1976 ..... $ 51,432,624.00

5. RECOVERIES BY THE U.S. GOVERNMENT

(a) Actual deposits into the U.S. Treasury:	
Canal tolls prior to June 30, 1951	$ 643,883,520.78
Net profits from business operations (activities corresponding roughly to our present supporting operations)	28,591,812.05
Licenses, fines, fees, and postal receipts	6,887,294.59
Proceeds from sale of construction equipment	6,990,681.75
Capital repayments and interest on public works in Panama and Colon	3,547,006.22
Dividends paid by the Panama Railroad from 1905 to 1950	23,994,905.00
Interest on net direct investment of the Company from July 1, 1951 to date	261,723,675.23*
Capital repayments from July 1, 1951 to date	40,000,000.00
Net cost of C.Z. Government, reimbursed by the Panama Canal Company	440,298,927.81
Canal Zone Government revenue and plant salvage	389,351,508.72
	1,845,269,332.15
(b) Deposit Credits:	
Value of canal tolls on U.S. Government vessels to June 30, 1951	70,668,969.00
Total deposits and deposit credits	$1,915,938,301.15

*Excludes interest withheld from payment to the U.S. Treasury in amount of $7,356,656.12 "unearned cost" for fiscal year 1976 as authorized by Section 62 of Title 2 of the Canal Zone Code.

Panama Canal Spillway

Payments, Income From C.Z. Pumped $243.2 Million Into Panama's Economic Bloodstream During 1976

Gross payments and income flow to the Republic of Panama from the Canal Zone remained at high levels in calendar year 1976, despite a decline in Canal transits and the implementation of strict austerity measures by U.S. Government agencies operating in the Canal Zone. The flow of funds into the Republic from the Canal Zone reached $243.2 million in 1976, a decline of 3.9 percent from the $253.1 million in the prior year.

Wages and salaries paid to Panamanian residents employed in the Canal Zone increased slightly to $108.8 million accounting for nearly 45 percent of the total dollar flow into the Republic. Purchases of goods and services in Panama by contractors working in the Canal Zone and expenditures in the Republic by private residents of the Canal Zone remained nearly constant from 1975 to 1976.

The overall decline in expenditures in the Republic resulted from a drop in direct purchases by U.S. Government agencies and a decline in purchases of goods in Panama by private organizations operating in the Canal Zone. The declines in both of these areas were primarily a result of significant reductions in purchases of petroleum products from Panama. Factors causing the reduction in petroleum purchases include the implementation of energy conservation programs and a decline in bunker sales to vessels.

TABLE I

ESTIMATED GROSS PAYMENTS AND INCOME FLOW TO THE REPUBLIC OF PANAMA FROM THE CANAL ZONE, 1975 AND 1976

(In Thousands of Dollars)

	1975	1976
1. Wages and salaries paid to Panamanian residents employed in the Canal Zone	$104,682	$108,823
2. Retirement and disability payments to Panamanian residents	14,373	15,126
3. Direct purchases in Panama by U.S. Government agencies	38,761	29,581
(a) Goods	28,308	20,601
(b) Services	9,953	8,980
4. Purchases of goods in Panama by private organizations operating in the Canal Zone	40,687	34,920
(a) Petroleum	34,248	27,800
(b) All others	6,439	7,120
5. Contractors' purchases in Panama of goods and services for Canal Zone projects	12,663	12,727
6. Expenditures made in Panama by residents of the Canal Zone	39,636	39,692
Sub-Total	$250,802	$240,869
7. Canal annuity	2,328	2,328
Total	$253,130	$243,197

Explanatory Notes

1. Gross payrolls, non-U.S.-citizen residents of Panama employed in the Canal Zone by U.S. agencies, contractors, and private organizations (e.g., shipping agents, clubs, churches, oil companies, banks, employee associations). Does not include wages of Panamanian residents employed by private individuals and households, the latter are included in the estimates given in Item No. 6.

2. The sum of disability and relief payments to Panamanians by Panama Canal Company-Canal Zone Government and retirement checks distributed to Panamanians by United States Embassy, Panama.

5. Aggregate amounts of goods and services purchased in Panama by U.S. agencies operating in the Canal Zone as reported quarterly by the respective agencies.

TABLE II

SALARIES AND NET INCOME OF NON-U.S.-CITIZEN EMPLOYEES IN THE CANAL ZONE RESIDENT IN PANAMA, 1975 AND 1976

(In Thousands of Dollars)

	1975	1976
GROSS SALARIES RECEIVED FROM:		
U.S. Agencies	$97,418	$101,281
Contractors	3,329	3,021
Private organizations	3,935	4,521
Total	$104,682	$108,823
LESS:		
Deductions for retirement funds	$6,490	$7,089
Expenditures for:		
(a) Hospital fees	4,296	3,500
(b) Transportation and Service Center fees*	4,503	4,259
Total	$15,289	$14,848
NET INCOME	$89,393	$93,975

NOTES

* Expenditures at Service Centers represent authorized purchases of small articles such as meals, candy, chewing gum and tobacco.

Data do not include the earnings of non-U.S.-citizen employees resident in the Canal Zone.

June 10, 1977

TABLE 3
Comparative Distances to Selected Ports Via Panama Canal and Alternate Routes[1]

From	Via[a]	To												
		Los Angeles	San Francisco	Seattle (Vanc.)	Guyaquil	Callao	Valparaiso	Yokohama	Shanghai	Singapore	Bombay	Melbourne	Wellington	Distances to Pacific Ports Relative to Distances from New York to Those Ports
New York (N.Y.)	PC	4,931	5,263	6,038	2,842	3,368	4,634	9,700	10,584	12,523	NA	9,942	8,523	
	M	12,805	13,122	13,898	10,241	9,605	8,366	16,209	16,761	16,619	NA	12,393	11,568	
	S	18,004	17,490	17,205	19,934	19,927	19,019	13,026	12,344	10,137	8,168	12,961	14,326	
	GH	20,247	19,733	19,442	19,740	19,733	18,825	15,269	14,587	12,380	11,382	12,641	14,132	
Halifax (N.S.)	PC	5,251	5,583	6,358	3,162	3,688	4,954	10,020	10,904	12,843	NA	10,262	8,843	NY + 320
	M	12,670	12,987	13,763	10,106	9,470	8,231	16,074	16,626	NA	NA	12,258	11,433	NY − 135
	S	NA[aa]	16,964	NA	NA	NA	NA	12,500	11,818	9,611	7,642	12,435	13,800	NY − 526
	GH	NA	NA	NA	NA	NA	NA	14,970	14,288	12,081	11,083	12,342	13,833	NY − 299
Norfolk (Newport News, Va.)	PC	4,735	5,067	5,842	2,646	3,172	4,438	9,604	10,388	12,327	NA	9,746	8,327	NY − 196
	M	12,751	13,068	13,844	10,187	9,551	8,312	16,155	16,707	NA	NA	12,339	11,514	NY − 54
	S	NA	NA	NA	NA	NA	NA	13,185	12,503	10,296	8,327	13,120	14,485	NY + 159
	GH	NA	NA	NA	NA	NA	NA	15,270	14,588	12,381	11,383	12,642	14,133	NY + 1
New Orleans (La.)	PC	4,357	4,689	5,464	2,268	2,794	4,060	9,126	10,010	11,949	NA	9,368	7,949	NY − 574
	M	13,178	13,495	14,271	10,614	9,978	8,739	16,582	17,134	NA	NA	12,766	11,941	NY + 373
	S	NA	NA	NA	NA	NA	NA	14,383	13,701	11,494	9,525	NA	NA	NY + 1,357
	GH	NA	NA	NA	NA	NA	NA	15,762	15,080	12,873	11,875	13,131	14,625	NY + 493
Aruba (Neth. Ind.)	PC	3,590	3,922	4,697	1,501	2,027	3,293	8,359	9,243	11,182	NA	8,601	7,182	NY − 1,341
	M	11,689	12,006	12,782	9,125	8,489	7,250	15,093	15,645	NA	NA	11,277	10,452	NY − 1,116
	S	NA	NA	NA	NA	NA	NA	13,618	12,936	10,729	8,760	NA	NA	NY + 592
	GH	NA	NA	NA	NA	NA	NA	14,279	13,597	11,390	10,392	11,651	13,142	NY − 990
Rio de Janeiro (Brazil)	PC	7,324	7,656	8,431	5,235	5,761	7,027	12,093	12,977	NA	NA	NA	10,916	NY + 2,393
	M	8,109	8,426	9,202	5,545	4,909	3,670	11,513	12,065	11,923	NA	7,697	6,872	NY − 4,696
	S	NA	NA	NA	NA	NA	NA	NA	13,348	11,141	NA	NA	15,330	NY + 1,004
	GH	NA	NA	NA	NA	NA	NA	11,791	11,109	8,902	7,904	9,163	10,654	NY − 3,478
Buenos Aires (Argentina)	PC	8,342	8,674	9,449	6,253	6,779	NA	NA	NA	NA	NA	NA	NA	NY + 3,411
	M	7,265	7,582	8,358	4,701	4,065	2,826	10,669	11,221	11,079	NA	6,853	6,028	NY − 5,540
	S	NA	NA	NA	NA	NA	NA	NA	NA	NA	10,272	NA	NA	NY + 2,104
	GH	NA	NA	NA	NA	NA	NA	12,172	11,490	9,283	8,285	9,544	NA	NY − 3,097

TABLE 3
Comparative Distances to Selected Ports Via Panama Canal and Alternate Routes[1]

From	Via*	To												
		Los Angeles	San Francisco	Seattle (Vanc.)	Guyaquil	Callao	Valparaiso	Yokohama	Shanghai	Singapore	Bombay	Melbourne	Wellington	Distances to Pacific Ports Relative to Distances from New York to Those Ports
Bishops Rock (for European ports)[2]	PC	7,301	7,633	8,408	5,212	5,738	7,004	12,070	12,954	NA	NA	12,312	10,893	NY + 2,370
	M	12,890	13,207	13,983	10,326	9,690	8,451	16,294	16,846	NA	NA	12,478	11,653	NY + 85
	S	NA	15,283	14,998	NA	NA	NA	10,819	10,137	7,930	5,961	10,754	12,119	NY − 2,207
	GH	NA	18,722	NA	NA	NA	NA	14,258	13,576	11,369	10,371	11,630	13,121	NY − 1,011
Gibraltar (for Medit. ports)	PC	7,264	7,596	8,371	5,175	5,701	6,967	12,033	12,917	NA	NA	12,275	10,856	NY + 2,333
	M	12,223	12,540	13,316	9,659	9,023	7,784	15,627	16,179	NA	NA	11,811	10,986	NY − 582
	S	12,885	12,371	12,086	14,815	NA	NA	7,907	7,225	5,018	3,049	7,842	9,207	NY − 5,119
	GH	NA	NA	NA	NA	NA	NA	13,550	12,868	10,661	9,663	10,922	12,413	NY − 1,719
Freetown (Sierra Leone)	PC	6,933	7,265	8,040	4,844	5,370	6,636	11,702	12,586	14,525	NA	11,944	10,525	NY + 2,002
	M	10,602	10,919	11,695	8,038	7,402	6,163	14,006	14,558	14,416	NA	10,190	9,365	NY − 2,203
	S	16,794	16,280	15,995	18,724	18,717	17,809	11,816	11,134	8,927	6,958	11,751	13,116	NY − 1,210
	GH	16,636	16,122	15,831	16,129	16,122	15,214	11,658	10,976	8,769	7,771	9,030	10,521	NY − 3,611
Lagos (Nigeria)	PC	8,006	8,338	9,113	5,917	6,443	7,709	NA	NA	NA	NA	NA	11,598	NY + 3,075
	M	11,205	11,522	12,298	8,641	8,005	6,766	NA	NA	NA	NA	10,793	9,908	NY − 1,600
	S	NA	NA	NA	NA	NA	NA	NA	NA	NA	8,092	NA	NA	NY − 76
	GH	NA	NA	NA	NA	NA	NA	11,220	10,538	8,331	7,333	8,592	10,081	NY − 4,049

* Letter abbreviations refer to Panama Canal; Straits of Magellan; Suez Canal; Cape of Good Hope.

** NA = Not applicable.

— Underscored figures indicate that shortest route is via the Panama Canal.

[1] Complied from U.S. Hydrographic Office, *Table of Distances*. H.O. Publication 141. Washington: Government Printing Office, 1965.

[2] Distances from Bishops Rock to sample Western European ports are: London, 413 nautical miles; Liverpool, 297 n.m.; Rotterdam 454 n.m.; Bergen 911 n.m.; Osl 947 n.m.

MULTIOBJECTIVE ANALYSIS OF THE PANAMA CANAL: THE VALUE OF A MARINE TRANSPORTATION SYSTEM

by

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Abbreviations

C.I.F.: Charged-in-full, or Cost, Insurance, Freight--the price of a factor at its point of delivery, including all transportation and handling charges.

dwt: Deadweight tons--the number of long tons (2,240 lbs.) of stores, fuel, and cargo a ship can carry without exceeding its design draft.

ECLA: Economic Commission of Latin America--a United Nations body (Comision Economica Para America Latina).

F.O.B.: Free on Board--a term applied to the valuation of exported goods up to the point of embarkation.

GDP: Gross Domestic Product--a measure of the total value of goods and services produced by the economy over a particular time period, normally a year. It is obtained by valuing outputs of goods and services at market prices, and then aggregating. The word "gross" means that no deduction for the value of expediture on capital goods for replacement purposes is made. Because the income arising from investments and possessions owned abroad is not included, only the value of the goods and services produced in the country is estimated; hence the word "domestic" to distinguish it from the gross national product.

GNP: Gross National Product--GDP plus the income accruing to domestic residents arising from investment abroad less income earned in the domestic market accruing to foreigners abroad.

Abbreviations, continued

IOCSC: Atlantic-Pacific Interoceanic Canal Study Commission, authors of Interoceanic Canal Studies, 1970, Washington, 1970. Some libraries may file this report under United States Atlantic-Pacific.....

I.R.A.: International Research Associates, Palo Alto, California.

LASH: Lighter Aboard Ship-- a ship type whose cargo is stored in barges or lighters. The barges can be lowered into the water and pulled to shore for loading and unloading, thus reducing the requirements for elaborate shoreside cargo handling facilities or for deep draft clearances at the wharf.

MARAD: United States Maritime Administration.

O/B/O: Oil/Bulk/Ore carrier-- a ship type designed to efficiently carry either crude oil or dry bulk cargoes including ores.

OPEC: Organization of Petroleum Exporting Countries.

P.L.D.: Precise Level Datum-- mean Atlantic sea-level, which is the base from which the elevations or heights of all structures and bodies of water in the Panama Canal are measured.

T.E.U.: Twenty foot equivalent unit-- a standard size container of 20 foot length.

U.K.: United Kingdom

UNIDO: United Nations Industrial Development Organization

U.S.: United States

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CHAPTER 4

ECONOMIC VALUE OF THE PANAMA CANAL

Introduction

The Panama Canal has been referred to as an international utility serving oceanborne commerce. It is natural to ask: What is the value of this utility? In 1973 Congressman Robert L. Leggett (Democrat, California), Chairman of the Subcommittee on Panama Canal of the Committee on Merchant Marine and Fisheries, House of Representatives, commented on this question.

> The economic value of the canal to our country and to the other user nations of the world has never been measured....It is one thing to record the tonnage of the some 15,000 ships and the type and value of the cargoes which pass through the canal on an annual basis, but the real value of this most important international waterway to the economies of the nations concerned is a far different matter.
>
> The very existence of the Panama Canal has established sea routes, influenced ship design, and has played a major part in the development of other modes and paths of transportation. Without this canal some markets would not exist, transportation would be higher between certain points, and far different transportation patterns would be predominant....
>
> By approaching the value of the Panama Canal through the requirements for its use on the part of the various user nations, I believe we will be providing an immensely valuable input toward an understanding of our position in Panama and what, if anything, should be done for the future of the canal(1).

Chapter 4 will develop a definition and an estimate of economic value as applicable to the Panama Canal. Such an estimate is desirable not only for its own sake, but because the methodology for making the estimate has not been previously demonstrated for the Canal. A development and demonstration of the methodology will prove useful for analyzing Panama Canal decision prob-

lems (addressed in Chapter 5) and for application to other marine transportation decision problems.

Throughout the following an effort will be made to make explicit the key assumptions of the analysis. In some cases the assumptions are debatable. It would be desirable to obtain better data, to know more about the interrelations of the various markets, and to be able to foresee the consequences of various actions. However, there are limits as to what can reasonably be done. The following analysis represents the most detailed and rigorous examination of the Panama Canal's economic significance to date. Many important decisions are made in the United States Government on the basis of limited information, e.g., the setting of the yearly defense budget, the commitment of the nation to use of nuclear energy, and the amount of oversight necessary to control federal agencies, to name a few. The quality and quantity of assumptions used in the following analysis are comparable to those used in making such decisions.

Outline of the Chapter

This chapter will first develop the theory for measuring a project's yearly net benefit. It will then discuss how a time stream of yearly benefits may be expressed as a single value. To actually estimate benefits, however, requires a knowledge of current and future market relations which is unattainable. Some implication of this lack of knowledge will be discussed in the context of general equilibrium analysis. A simple way of visualizing Panama Canal economic value will be developed using tolls as a parameter. Following this will be a discussion of

some of the problems of establishing a benchmark to which measures of benefit can be related. The principle of "with and without" will be used for establishing a reasonable benchmark for the work described.

Following the introductory material is the analysis which leads to an estimate of the Canal's value. The flow chart in Figure 4-1 illustrates the structure of the analysis. Following the right-hand branch from the Introduction, it will be shown that, for the Panama Canal case, gross 1975 Canal-created benefits equal the incremental cost of sailing the fleet of ships, which normally pass through the Panama Canal, between the points which the ships normally call but bypassing the Canal. Bypassing the Canal entails sailing the ships greater distances, and it is the cost of the additional distance sailed that, for the case of the Panama Canal in 1975, equals the gross benefit created by the Panama Canal. The cost per mile of representative ship classes currently using the Panama Canal will then be determined. If the Canal were closed, these ships are assumed to be rerouted onto longer tracks around the Capes of Good Hope (Africa) and Horn (South America), and the additional miles traveled will be estimated. A first or unadjusted estimate of the gross benefit created by the Canal will be based on the incremental cost of rerouting the representative ships over the greater mileage. This unadjusted estimate will then be improved by taking account of the possibility of using the Suez Canal. The cost of delaying cargo and containers will be estimated. Some benefits of avoiding the Panama Canal, due to saved waiting time, will be esti-

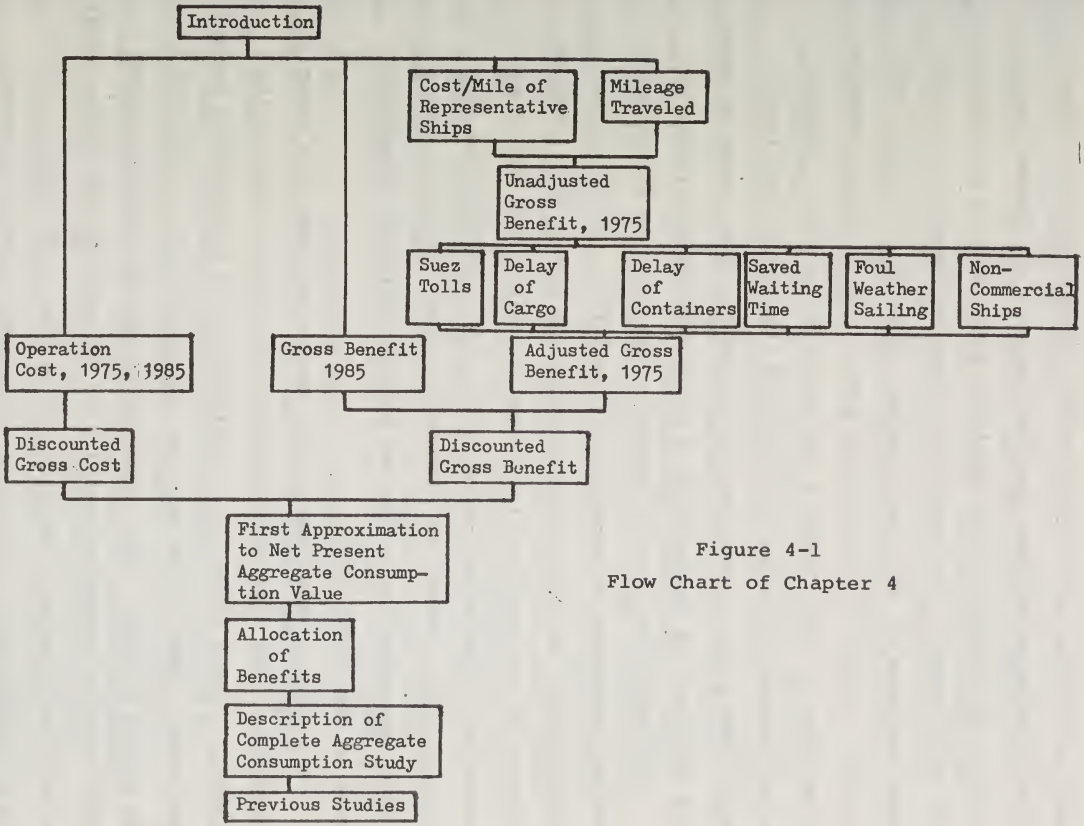

Figure 4-1
Flow Chart of Chapter 4

mated as will the cost of foul weather sailing near the Capes. As the unadjusted estimate does not apply to all Panama Canal traffic, the benefit to the remaining small portion of traffic will be discussed. The results of these refinements is an adjusted estimate of the gross economic value of the Panama Canal in 1975. In order to develop the time stream of Canal benefits, an estimate of gross benefits for 1985 will be made. Interpolating between the values for 1975 and 1985 and extrapolating beyond 1985 gives an estimate for the entire time stream of benefits which can be expressed as a discounted present value.

Estimating the cost of operating the Canal is straightforward and estimates are made for 1975 and 1985. Interpolating between these two values and extrapolating beyond 1985 gives an estimate of the complete time stream of costs which can be expressed as a discounted present value also. Subtracting discounted present costs from discounted present benefits yields a first approximation to the net present aggregate consumption value of the Panama Canal.

The value of the Panama Canal can be analyzed from several viewpoints. One view would question the Canal's value to the world as a whole without any consideration of who actually reaps that value. Such a view might be appropriate for a body such as the United Nations. Very likely United States decision-makers would view the aggregate benefits to the world of the Panama Canal as only one of several desirable statistics. The benefits accruing to various world regions is also likely to be of interest, especially as the U.S. economic objective is probably best defined

as one of U.S. economic welfare.

Therefore, Chapter 4 will not only develop an estimate of the Canal's world value, but also it will estimate an allocation of that value to various world regions. The allocation will be based on an examination of prevailing demand and supply price elasticities in world trade.

The requirement to identify the specific regional benefits created by the Panama Canal introduces a special problem, as the existence of the Canal has had the effect of localizing within the country of Panama certain shipping service activities which, without the Canal, would probably have been located in other world shipping centers. From a global perspective, the economic effect of locating these services in Panama may net to zero, since what others have lost, Panama has gained. Taking a regional perspective, however, requires that these redistributional effects be recognized and analyzed. A first approximation of the size of these redistributional benefits will be undertaken in Chapter 4 and the sum of the redistribution and economic productivity effects of the Panama Canal, as reaped by various world regions, will be presented.

The benefit estimates contained in Chapter 4 are only a first approximation to the complete estimate of the aggregate consumption benefit of the Panama Canal because certain economic relations cannot be satisfactorily established from available data. The necessary steps, and the underlying economic principles of a complete aggregate consumption analysis of the Panama Canal are described in the chapter.

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The chapter will conclude with an examination of previous efforts to estimate the Canal's value.

A Comment on Chapter Organization

It is usually helpful to present at an early point in an analysis the results of previous studies. This will not be done here as all four previous attempts to estimate the economic value of the Panama Canal contained significant conceptual flaws. As these studies contributed little to the basis of the present analysis, presenting them at this point would interrupt the flow of arguments. The studies are presented at the conclusion of this chapter after the correct conceptual basis has been described. The conceptual basis of Chapter 4's analysis is primarily an outgrowth of water resources project evaluation methods.

Theory of Project Benefit

Economic accounting of a project's net benefits consists of determining the difference between gross benefits and costs. A difficult aspect of this accounting is the determination of gross benefits. This section will explore these difficulties.

The concepts of benefit and profit are closely linked. The former applies to public sector or social economic accounting and the latter to private sector accounting. Both are measured in monetary units--dollars--and both represent the value of the sum of the price times quantity of relevant goods and services.

Furthermore, value and satisfaction derived from the goods and services are assumed to be closely linked with value serving as an imprecise measure of satisfaction. Thus, benefit, value and satisfaction are closely related with the first two

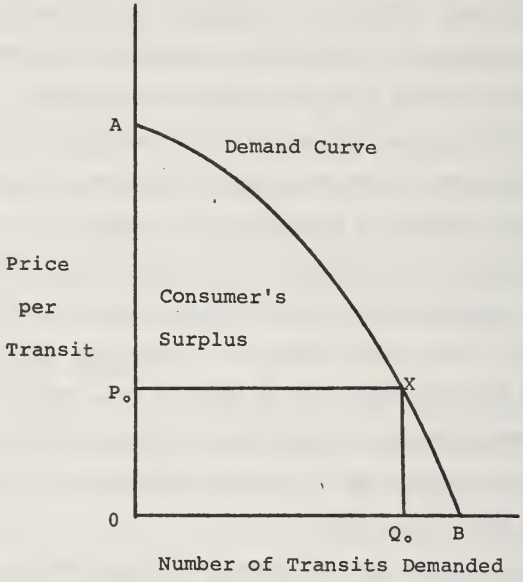
terms used interchangeably.

Public economic accounting is distinguished from private accounting by the prices used. Whereas private accounting uses prices found in the market to evaluate the financial effects of actions, social economic accounting uses a set of prices called shadow prices. These are not found in the market, but rather must be derived on the basis of a social accounting of the satisfaction derived from the goods and services. The idea that price (private) does not equal price (social) implies more than that a dollar may be worth more or less than 100 cents. It also implies that identical quantities of a good or a service may not have an equivalent social value, even though they would have identical market prices. Social value for a good or service is assumed, to a first approximation, to equal an individual's willingness to pay for that good or service and, since different individuals have differing willingness to pay, identical quantities of a good or service may be valued differently. Figure 4-2 will assist in explaining this.

In Figure 4-2, the line AB represents the maximum users are willing to pay for Canal transit service. If the price charged for a transit is P_o, consumers will buy Q_o transits, paying a total of P_oQ_o. But the value of the satisfaction that the consumers anticipate is more, being the area $OAXQ_o$. The difference between what is paid and the amount of satisfaction received is the area AP_oX which is referred to as the consumer's surplus. Notice that different units of transit service (Q_o) are assumed to supply different amounts of satisfaction

FIGURE 4-2

Consumer's Surplus



even though each unit is physically identical. See Marglin (2) for more on this subject.

If the payments for service (P_oXQ_oO in Figure 4-2) equaled the cost of providing the service, then the net economic value of the Panama Canal to a first approximation could be defined as the excess in satisfaction its service provides over the amount paid to purchase the service, i.e., the consumer surplus. The line AB in Figure 4-2 is the demand curve because it traces out the quantity demanded for each possible price charged. Thus, the demand for Panama Canal services is an important determinant of the Canal's value.

Another comment about Figure 4-2 is in order. Figure 4-2 assumes that a constant price is charged for each unit of service. Were a discriminating monopolist to take over the Panama Canal, he might charge prices equaling the user's willingness to pay. In this event the consumer surplus of the Panama Canal would be captured by the monopolist, not the consumer.

This raises the question of to whom benefits accrue. So long as prices are kept low, Panama Canal users (shipowners) reap the consumer surplus. Since monopoly profits are not accumulating among shipowners, these benefits must be passed along to the shippers and receivers of Panama Canal-transited cargoes, the international marine traders in the various world regions. Very likely the traders pass some or most of the benefits on to the producers and consumers of Panama Canal-transited cargoes. Were a monopoly price to be charged at the Canal, these benefits would be lost by the present beneficiaries and be captured in the form

of high toll payments, by the operator of the Panama Canal.*

The concept of benefit equals willingness to pay, used in social benefit counting, necessitates counting consumer surplus as the first approximation with shadow prices used for the final estimate. Consumer surplus is the actual payments which could be extracted from individual Canal users. The actual payments are a measure of individual willingness to pay, but do not credit these payments with their social value, i.e., a social or communal willingness to pay. Shadow prices are used to account for the social aspect of the accounting.

Social willingness to pay comes about because microeconomic imperfections in the market may result in external benefits and costs which accrue to individuals other than the ones making the market choices and consuming the purchased goods and services. Pollution is an example of an external cost not borne by either the consumers of goods purchased from polluting firms or by the firms themselves. A less obvious, but more important, example in the case of the Panama Canal is that of the value of a unit of foreign exchange. Much of the benefit reaped by consumers

*The special case of monopoly pricing will come up again in the course of the analysis. Monopoly pricing elsewhere in an economy may or may not enter into a determination of willingness to pay. For example, in evaluating the willingness to pay for irrigation water for growing sugar cane, the analyst would be interested in the farmer's willingness to pay for the water. However, if the cane is bought by a monopolistic sugar refiner, then the farmer's willingness to pay for the water understates the true value of the water by the amount of the monopolist's profits. The process of growing cane and of refining it may be considered complementary. In the case of supplementary processes, appropriate for Canal analysis, the interpretation is different. If the Canal were unavailable, shippers would employ alternatives to the Canal which, in some cases, may reap profits in the form of rents. These profits do not under- or overstate the willingness to pay for Canal services, however, because a monopolist cannot extract more from a consumer than the consumer is willing to pay.

and producers of Panama Canal-transited goods comes in the form of saved foreign exchange and the value of a unit of foreign exchange, particularly in the economies of developing countries, may exceed by a factor of one-half the official value of that exchange, as indicated by the published foreign exchange rate. Further, there may be macroeconomic imperfections as well caused by a divergence between socially desired rates of economic growth and the actual rate of growth of a country's economy. Economic growth reflects individual intertemporal preference, a form of willingness to pay. What individuals prefer regarding present versus future consumption affects investment decisions which, in turn, affects the rate of economic growth. These preferences may not be what would be preferred by a society acting as a whole. In other words, there are important externalities from investment decisions affecting rates of economic growth, and these can be recognized using shadow prices.

Economic conditions have been identified such that, if they existed in theory, there would be no need to utilize shadow prices. These conditions are: 1) All markets are perfectly competitive; 2) no microeconomic externalities exist; 3) socially determined rates of economic growth are considered optimal so that the rate of return on private investment properly reflects the social value of investment.

Chapter 4 contains an economic analysis of the Panama Canal based on only the consumer surplus aspect of Canal benefits. To obtain the true social-economic benefit of the Panama Canal would require using the complete range of social benefit-counting cri-

teria including the use of the necessary shadow prices. The results would be called the aggregate consumption benefit. An aggregate consumption accounting can be a difficult task and will not be attempted. Rather, by making reasonable assumptions as to the nature of the shadow prices, one can gain insight on the likely results of a complete aggregate consumption analysis. This is done here.

Net Present Value

Not only is there a willingness to pay for system benefits in each year of operation of interest, but also there is a willingness to pay for the entire time stream of benefits produced by the Canal. What is needed is some way to estimate that lump sum payment which an individual would find equally satisfying to the receipt of a guarantee to the given time stream of benefits. If the individual is indifferent as to the year he receives his benefits, the lump sum payment producing equivalent satisfaction is just the sum of all the yearly benefits. However, most policy makers are not indifferent to the year the benefit is available for consumption. Benefits available immediately are apt to be more valued than guarantees of riches in the far future. Thus, the lump sum payment considered equivalent to the time stream of benefits may equal $B_o + V_1B_1 + V_2B_2 + \ldots + V_tB_t$ where B_t is the net benefit created in year t and V_t represents the preference weight placed on these benefits. V_t probably declines as t increases.

The United Nations Industrial Development Organization (UNIDO) Guidelines (3, pp. 155-156) among many others shows that, if the weights on consumption decline over time at a constant percentage rate, the sum of yearly benefits can be expressed as

$$B_{sum} = \sum_t \frac{B_t}{(1+i)^t} \qquad (4.1)$$

where i is the constant rate of decrease in the weight. B_{sum} is referred to as the discounted present value of the time stream of benefits as evaluated at the discount rate i.

Partial Equilibrium Versus General Equilibrium Analysis

For each year , estimates are presented in the following analysis of the gross benefit and cost of the Panama Canal operation. One way to estimate benefits is to estimate the shape of the relevant demand curve for Panama Canal services.

It is assumed that changes in the pricing and availability of Panama Canal services will not affect the rest of the world's economic performance, causing changes in that performance which would feed back on the Panama Canal curves. Such an assumption produces a partial equilibrium analysis. A general equilibrium analysis would account for the effect on Panama Canal demand of changes in the level of foreign trade caused by a Canal closure or a change in the Canal's pricing and operation policy.

General equilibrium considerations need not be confined to economic effects, but can be applied with equal relevancy to all objectives of interest. For example, a change in the American will in regard to protecting South Korea could, in principle, affect relations with Japan and even Western Europe.

Economic general equilibrium effects can be analyzed using simultaneous equations to describe the quantities of all factor inputs and outputs. One simple linear analysis has been performed for the U.S. economy (4). If it were possible to derive and solve these sets of equations for the world economy for each year of interest, feedback or general equilibrium effects could

be determined. Thus, when forecasts of Panama Canal demand are presented, an assumption is made concerning the solutions of simultaneous equations which describe the world's economy. It is fundamentally impossible to predict the solution of these equations for future years. Lack of data prevents identification of general equilibrium effects for the present. Sensitivity analysis, the calculation of the change of Panama Canal benefits with respect to a parameter, provides a means of partially testing the significance of the assumptions.

However, sensitivity analysis has its limitations since an exhaustive examination of every conceivable parameter value can consume considerable quantities of analytic resources, and the actual parameter values may be overlooked due to unforeseeable relations and feedbacks.

The analysis undertaken here utilizes two conceivable and interesting future demand and supply conditions, these depending on the availability of the Suez Canal, as an indication of the sensitivity of the analysis to assumptions regarding demand for Panama Canal services. No claim is made that these efforts solve the problems mentioned and the analytic results are only two of many reasonable estimates.

The problem of identifying general equilibrium effects is related to the problem of maintaining a consistent level of precision in all estimates. In the following analysis, emphasis will be placed on demonstrating the complete methodology for estimating the economic value of the Panama Canal rather than on maintaining a consistent level of accuracy. Differing levels

of accuracy do not spoil the analysis. The shortcomings of previous efforts at estimating the Canal's value have been chiefly related to theory interpretation, and it seemed especially desirable to clarify the theoretical problems. Therefore, each step will be developed in detail even though the available data in some cases do not warrant the effort. Working out all estimates in detail helps identify which costs and benefits are important and which are not. To adjust all steps of the analysis to a level of equal precision would have reduced the labor without damaging the final estimates, but would have reduced the utility of the study for future researchers.

Panama Canal Demand and Its Relation to Canal Tolls

This section discusses the relation of Panama Canal tolls to Canal demand and employs that relation to demonstrate one method for estimating the demand curve for Panama Canal services.

The prospects for profitable trade cause shippers to contract with shipowners for cargo-carrying space. Commodity shipper earnings and costs, including Canal tolls, may be thought of as being allocated among the shipped cargo. Thus, a wheat shipment of 15,000 long tons (2,240 pounds per long ton) might transit the Panama Canal in a ship whose laden toll assessment was calculated at $12,000, averaging $0.80 per cargo long ton. This latter ratio of toll assessment per long ton of cargo is called the effective toll rate.

Wheat transiting in a fully laden ship would be assessed one-half the effective toll of wheat transiting in the identical one-half-full ship. This comes about because a ship's Panama Canal

tolls are assessed on the basis of the ship's internal cubic cargo space, not on the basis of the quantity or type of cargo carried. Thus, both ships would pay the same toll, but one would transit twice the cargo tonnage of the other.

The effective toll rate varies from shipment to shipment, depending on such things as the cargo's density and the ship's load factor. Table 4-1 gives some average values by commodity type, 1970 Panama Canal experience, recalculated for the 20 percent increase in toll rates which became effective near the start of fiscal year 1975.

Table 4-1

Average Effective Toll for Selected Commodities
(toll per long ton)

Manufactured Steel	$ .55
Coal	.66
Rice	.78
Soybeans	1.09
Paper	1.84
Bananas	3.31
Automobiles	8.68

U.S. Atlantic and Pacific Interoceanic Canal Studies, 1970, Government Printing Office, 1970.

If toll rates were increased, some of the cargo now transiting the Panama Canal would be diverted by shippers to other modes of transport (see Chapter 3) because the total transport cost, consisting of freight rate plus Canal toll, would be greater than the total cost of some available alternative.* For some shipments, these alternatives are already equal in cost to the Panama Canal. Other cargoes might cease moving in international trade because the increased cost of the Canal toll plus freight charges or the

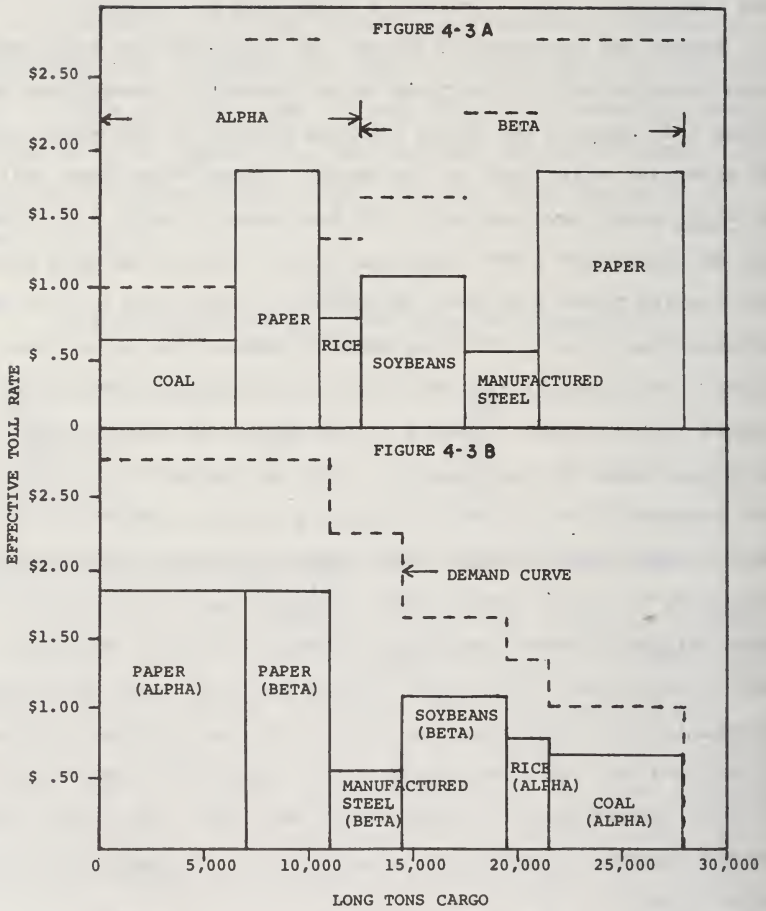
*The freight rate charged shippers by shipowners normally includes all costs, including canal tolls. For purposes of examining shippers' willingness to pay for Panama Canal transit, assume that Panama Canal tolls are billed separately.

cost of the next cheapest available transport alternative is greater than the benefit to be gained from trading. Assuming that tolls were not raised too high, some cargo would probably continue to pass through the Canal, reaping a lower consumer surplus.

Assume two hypothetical ships, the Alpha and the Beta, made laden transits in 1975 carrying three classes of commodities each. Figure 4-3A depicts the cargo tonnages carried by the ships and the effective tolls paid on the cargo. Figure 4-3A shows that the Alpha might have carried 7,000 long tons of coal, 3,750 long tons of paper, and 1,500 long tons of rice, while the Beta might have carried 5,000 long tons of soybeans, 3,750 long tons of manufactured steel, and 7,200 long tons of paper. The solid lines of Figure 4-3A represent the effective toll actually borne by the cargoes (for the coal shipment of the Alpha the effective toll would have been 70¢ per long ton), and the dashed line of Figure 4-3A represents the (unknown) maximum potential effective toll for these commodities. If more than these latter effective tolls were charged by the Canal authorities, shippers would be motivated to cease shippping these commodities through the Canal and employ other alternatives which might include quitting trade altogether. Rearranging the commodities on the quantity axis reveals, as seen in Figure 4-3B, that the dashed line is really the demand curve of these commodities for Panama Canal services. The dashed line has the expected demand curve characteristic of sloping downward to the right.

It was noted earlier that the height of the demand curve establishes the gross economic value of the Panama Canal. Figure

EFFECTIVE TOLL RATE



Legend:

——Effective present Panama Canal toll rate

_ _ _Effective toll rate which causes cargo to divert from the Panama Canal

4-3B demonstrates that one way to determine the demand curve is to determine the effective toll which would cause cargo to be diverted from the Canal.

The "With and Without" Principle

In evaluating the benefits and costs of a project, two situations must be compared: the development of the economy with the projects, and the development that would occur without it. The change in the path of the economic system because of the project involves certain costs and benefits, and it is the object of analysis to identify these changes. The "with and without" principle requires that the economic analysis contrast these two hypothetical situations (see Eckstein (5)). An alternative statement of this principle would be that only marginal costs and benefits count in decision making.

This principle focuses attention on the decision to undertake a project. Net benefits may have been created via the original decision which created the Canal; yet that decision was made 70 years ago. It is of no interest for present decision making. The evaluation of a facility already in existence, not in prospect, requires a special approach.

In what sense does "economic value of the Panama Canal" take on meaning? It does so if a scenario is hypothesized by which the Canal might cease to exist, and an associated decision which would prevent this is identified. Either political strife or natural disaster could close the Canal permanently. Should a closure occur from such causes, it probably would not be foreseen, or the warning would be too little to permit significant adjust-

ments in ocean commerce patterns before the closure. This scenario is not implausible and yields the kind of analysis one could naturally associate with questions of the economic value of the Panama Canal. This will be the "without" case or the benchmark because it presumes that the U.S. Government does not decide to reopen the closed Canal.

The "with" case envisions a natural disaster or political strife causing a Canal closure, but followed by a decision to reopen the Canal to the same operating conditions as existed before the Canal closure.* Setting the with and the without cases in this fashion insures that the benefits of the Panama Canal, as they are commonly thought of, will appear with a positive algebraic sign at the end of the analysis. Since no specific scenario is defined here, the costs of reopening the closed Canal are not specified. The results of the analysis might then be interpreted as the maximum amount it would be worth to invest in reopening the Canal were it to be closed for any reason.**

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*Some commentators have pointed out that it may ultimately be impossible to maintain peace in Latin America if the United States does not acquiesce to a new treaty relationship with Panama. Were one to assume that war was inevitable, one might wish to utilize a different "without" scenario for analysis of the value of the Canal. See Penny Lernous, "Face-Off in Panama: U.S. Imperialists, Old and New," The Nation, April 3, 1976, pp. 391-396, for a discussion of some of the possible economic consequences for the United States of a Latin American outbreak of violence over the Panama issue.

**Alternatively, the hypothetical key decision could be made prior to an anticipated Canal closure with preventative measures being taken by Canal authorities. The results of the analysis might then be interpreted as the maximum amount it would be worth to invest in preventative measures were the Canal threatened with closure. This approach imposes more stringent requirements on the scenario by which the Canal is closed since it requires that Canal authorities are warned sufficiently in advance so as to have time to react, but not so far in advance that shippers have time to formulate plans for operating without a Panama Canal.

Describing the "with and without" cases raises a concern for the algebraic sign of the economic estimates. The benefits and costs of the Canal consist of various components, such as benefits of avoiding delays to cargo. This could also be cast, using a different benchmark, as questioning the costs of incurring delays to cargoes with the result having the same absolute size, but having a different algebraic sign. Since it is more convenient to analyze some problems by answering the question "What are the costs of this component if the Panama closes?" than it is to answer the question "What are the benefits resulting from reopening a closed Panama Canal?", both implicit benchmarks will be used in the following analysis. The proper algebraic sign will be applied in the end to be consistent with the "with and without" scenario described above.

PART A

An analysis of the Panama Canal's economic value falls naturally into three parts. The first part, Part A, contains an estimate of the gross discounted economic value of the Panama Canal to the world. Part B contains an estimate of the discounted costs of the Canal operation while an estimate of the net benefits and the interpretation of the results are contained in Part C.

Unadjusted Estimate of Gross Economic Value, 1975

It is necessary to establish a time frame for the analysis since time is an important parameter for estimating discounted present values. It will be assumed that the hypothetical decision to keep the Canal open was made in fiscal year 1975 because this is the last year for which complete Panama Canal traffic statistics are available.

By analogy with the events following the sudden closure of the Suez Canal in 1967, a sudden closure of the Panama Canal would likely be followed by: 1) A rerouting of the same ships around the Capes of Good Hope and Horn so as to continue trading between the same trading partners as before; 2) a rearrangement of trade patterns; or 3) a cessation of trade. A rearrangement means that goods previously shipped through the Panama Canal from country A to country B might, following a Panama Canal closing, be exported from country A to country C with country B importing from country D.

Research by International Research Associates (IRA) into

the costs of various alternatives to the Panama Canal in 1973 led them to believe that approximately 30 percent of the cargo tonnage which otherwise would have transited the Panama Canal in the event of a Canal closure would have experienced a rearrangement, with the remaining 70 percent rerouted (6, p. 6). It appeared to IRA that no appreciable tonnages of cargo would cease moving in trade.

The IRA conclusions were based on an assumption that the Canal closure took place during a year of normal demand for world trade. Since 1975 was a year of depression in world trade markets, the assumption on which the IRA estimate was based is not strictly met. It is likely that some non-zero amount of trade would have ceased moving altogether in 1975 following a Panama Canal closure. Thus, the following analysis, which uses the IRA results, should be interpreted as an overestimate of Panama Canal benefits.

The 30/70 split of rearranging and rerouting was expected by IRA to last for approximately one year after the Panama Canal closed. As time passed, it was expected that other alternatives to Canal transit, besides rerouting or rearranging trade, would be increasingly utilized.

The IRA based its conclusions on an examination of standard shipping contracts. These contracts are relatively inflexible. In most cases when a sudden cost increase is experienced, importers are required to bear its full weight and honor their agreement. Thus, the IRA conclusion that most trade would continue following a Canal closure was reasonable.

Use of Ship Operating Cost as an Estimate of Gross Benefit

Previously it was stated that gross social benefits are, to

a first approximation, equal to individual willingness to pay for project output. The procedure for estimating willingness to pay is usually difficult and complex.

Steiner (7) has described a procedure for estimating benefits which is appropriate for the Panama Canal case. In the event a public and private project would both provide equivalent goods or services, the gross benefit of the public project equals the aggregate consumption cost of the private project. This alternative cost measure of benefit is applicable to the Panama Canal for 1975 since, were the Panama Canal to close and remain closed, most all international trade, if one holds to the IRA results, would continue being carried in private commercial cargo ships around the Capes of Good Hope and Horn. The gross benefit of the Panama Canal would then be equal to the incremental cost incurred by the ship owners sailing on the longer tracks. Presumably the additional costs per ton of cargo incurred by the 30 percent of cargo which experiences a rearrangement following a closure of the Panama Canal would be less than the cost per ton incurred by the rerouted cargo since the rerouting is available, but not chosen. Costs for the rerouted cargo will be estimated first.

The cost of rerouting 70 percent of the cargo may be estimated by: 1) dividing the fleet of ships into six classes; 2) selecting a representative ship from each class based on the estimated cost per mile of operating the ships in each class;

3) examining Panama Canal trading patterns to estimate the incremental mileage traveled by the fleet of ships, by ship class, in the event of a Canal closure; and 4) multiplying the ship costs per mile times the incremental mileage which would have been traveled to yield an estimate of the cost of rerouting the ships onto the longer tracks.

The alternative costs incurred by the 30 percent of Panama Canal cargo which is rearranged following a Panama Canal closure will be estimated by assuming that 30 percent of Panama Canal ship tonnage movements will be rearranged. This is equivalent to assuming that there is a one-to-one correspondence between Panama Canal ship tonnage and Panama Canal cargo movements, a not unreasonable assumption since only about 14 percent of Panama Canal ship net tonnage transits in ballast. Many of the ballast transits are associated with a prior or subsequent laden transit through the Canal. Although the relationship of Panama Canal ballast transits to laden transits is largely unexplored, it seems reasonable that cargo tonnage movements and ship tonnage movements should be closely related and the small volume of ballast transits do not appear to weaken this presumption. One might also assume that the alternative cost incurred in rearranging trade by the cargoes which do experience a rearrangement is lower for them than the cost of rerouting. Very likely, the average alternative cost of rearranging will be about one-half the average cost per ship ton of rerouting. Thus, once the average cost per ship ton of rerouting is estimated, it will be possible to estimate the average cost per ship ton of rearranging

by using a factor of one-half to convert from the former to the latter.

Use of alternative ship routing costs as a measure of Panama Canal gross benefit is valid so long as the privately provided alternative service is a close approximation to Panama Canal service and so long as the relevant costs are properly identified. Costs are defined, in this context, in terms of willingness to pay. The cost of utilizing a resource or service equals the willingness to pay for the resource or service. The cost is incurred at the time the resource is withdrawn from its availability for alternative utilization. Therefore, the benefit of the Panama Canal operation is, according to the alternative cost principle employed here, equal to the willingness to pay for resources which are withdrawn from alternative consumption possibilities as a consequence of a closure of the Panama Canal.

Were a Canal closure to result in a rerouting of ships, the resources utilized would include all of the marginal costs of ship operation, e.g. fuel and crew labor. Furthermore, were more ships laid down in shipbuilding yards as a consequence of a Canal closure, the cost of constructing those whips would constitute part of the alternative costs. These costs would be incurred at the time the ships were built. Data on ship marginal costs exists and will be cited in following pages. Whether any new construction of ships would result as a consequence of a Panama Canal closure would depend on the number of available ships at the time of a closure, on their type and on their age. An examination of the supply ships available to meet an incre-

mental demand would be helpful in this regard.

Following a Panama Canal closure, if 100 percent of Canal ship tonnage were to divert to longer routes circling the Capes, the necessary additional ton miles of shipping capacity would be 1.44×10^{12} dwt-miles, obtained by multiplying the incremental mileage listed in Table 4-15, times the ship tonnage of Table 4-2 and including a factor of 2 to convert Panama Canal net tonnage to deadweight tonnage. In September, 1975, laid-up and inactive tanker and dry cargo ship tonnage amounted to 50.3 million dwt, of which 73 percent was tanker tonnage. As the shipping market has been depressed since January, 1974, it is probable that this tonnage was unemployed then, or shortly thereafter (except for new tonnage) and remained unemployed throughout fiscal year 1975. Therefore, it would have been available to meet the shipping capacity demand created by a Panama Canal closure. Assuming this tonnage could make 16 knots and that the ships are at sea an average of 306.4 days a year, which is consistent with data contained in Table 4-9, then these ships could supply 5.92×10^{12} dwt-miles of shipping capacity in a year. This is over four times the incremental demand which would be created by a Panama Canal closure if all ship tonnage were to reroute. The excess is probably understated because many ships which were not laid up were idle or underemployed, implying an even greater excess of available capacity. This excess is somewhat deceptive, however, as the primary demand a Canal closure would create would be for dry bulk shipping and the excess, according to the conservative laid-up tonnage statistics, was a

factor of two.

These statistics imply that a Canal closure would likely motivate very little additional ship construction, but rather would encourage the reactivation of laid-up ships. Therefore, it appears that the alternative capital costs incurred as a consequence of a Canal closure (the capital costs being embodied in the construction of new ships) would be relatively small, or essentially zero. As a result, no allowance will be made in the cost estimates for the capital cost of ships in the following analysis. Some preliminary calculations were undertaken in which it was assumed that the capital costs would be incurred as a consequence of a Canal closure, these costs reflecting the construction required to provide equivalent ship tonnage* to completely fill the incremental demand created by a Canal closure. The calculations indicated that capital costs would constitute approximately 15 percent of total alternative costs were ship constructions undertaken of the magnitude required to meet the incremental demand. Therefore, the following estimates of the economic value of the Panama Canal appear to be fairly insensitive to assumptions of ship capital costs, but the assumption of zero marginal capital cost appears to be reasonable.

It is fortuitous, from an analytic viewpoint, that 1976 was a year of significant overcapacity in the shipping market. Due to the overcapacity, it is unlikely that the prices charged by ship owners, on a ton-mile basis, would have risen as a consequence of the increase in demand for ships. Rather, the increase in demand would have been met by an increase in supply

* The conservative aasumption was made that the constructed ships would be of the same size as those ship which presently use the Canal.

with prices, on a ton -mile basis, remaining relatively constant. Were one to believe that supply was relatively fixed in the short run, an increase in demand would only be met by removing shipping capacity from other users. The marginal foregone consumption possibility would then be worth the willingness to pay for the diverted shipping capacity, the willingness being based on that of the users losing the shipping capacity, this being reflected in the market demand price. In this case, it would be necessary to forecast the market demand price for ships and use that demand price as an estimate of alternative costs. However, the excess in supply of ships permits one to avoid this difficult analytic problem and utilize instead the long-run costs of ship operation, costs which are documented and available to analysts. Furthermore, the problem of allocating benefits is simplified because one need not consider ship owners. Aside from normal profit, their incomes will not be affected by a Canal closure since they will likely not increase their charges, measured on a ton-mile basis, following a closure and thus do not have a significant vested interest in seeing the Canal closed. The effect of a Canal closure would be too small, from their viewpoints, to appreciably affect their profit positions. The total freight bill would increase, of course, due to the longer sailing distances.

For a normal year in the shipping market, excess idle capacity would not be excessive and use of the alternative cost measure of benefit for the Panama Canal case would likely yield a benefit estimate lower than the level of revenues which shippers could

extract. Since the willingness to pay for service is the true measure of benefit, and since this would probably exceed alternative long-run cost estimates, benefit estimates based on the latter would underestimate the true level of Panama Canal benefit in a year of normal economic conditions.

Time-Related Costs of Representative Ships

Recapping briefly, the gross benefit of the Panama Canal in 1975* equals the cost of privately provided transportation alternatives which would actually be used if the Canal were suddenly closed. About 70 percent of total Canal cargo tonnage would continue to be transported in the same ships as normally pass through the Canal. These ships would move between the same origin and destination as planned before the Canal closed, at least during the first year after closure.

It will be assumed for the moment that 100 percent of the Canal traffic would have been rerouted. It is possible to obtain the incremental cost of rerouting by estimating the incremental cost which would have been incurred by approximately 15,000 ship-trips moving over 88 separate trade routes which pass through the Panama Canal. Fifteen thousand calculations are best done on a computer, but in the interest of getting a reasonable estimate the calculations will be compressed by assuming that the cost and performance characteristics of the fleet of approximately 15,000 ships** can be adequately represented by six ships. Each of the

*All dates from here forward refer to fiscal years ending June 30.

**While approximately 15,000 transits of the Panama Canal were made in 1975, fewer than 15,000 ships were involved since some ships made more than one transit.

ships falls in a specific ship class, each class having its own unique performance and cost characteristics.

One might suppose that the average cost ship of a fleet of the same type ship, but composed of a variety of ship sizes, would be the average size ship for that fleet. This is not true, however, as larger ships benefit from economies of scale and thus contribute less to the total cost of a fleet than they contribute to the total tonnage of a fleet. Therefore, to determine the cost of the ships representative of the Panama Canal fleet by ship type, one cannot do so by picking the average size ship and determining its costs. Rather, one must know the total cost of the fleet of ships passing through the Panama Canal by ship type and divide this by the number of ships of each type to get the average cost of the representative ships. The difference between using the average size ship and the average cost ship as representative of the Panama Canal fleet results in a variation in costs, depending on the type of ship, from 5 to 15 percent.

The author was fortunate to obtain from the Panama Canal Company statistics on 351 transits which occurred in fiscal year 1972. These statistics, which will be used in the following analysis, listed for each transit the type of ship, its nationality, dimensions, type and tonnage of cargo, the trade route the ship was sailing on, its registered gross tonnage, Panama Canal net tonnage, and the tolls it paid. Panama Canal transits are recorded in approximate order by direction through the Canal on transit lists. Every fortieth ship on the sequential monthly transit lists for 1972 was put in the sample.

Goss (9) has compiled the long-run cost per day of tankers, bulk carriers, general cargo carriers, oil/bulk/ore carriers (which may also be referred to as O/B/O's or combination carriers), container carriers, roll-on roll-off vessels, and LASH vessels (lighter aboard ship). These long-run costs include administration, maintenance, marine insurance, crew wages, fuel for the ship's hotel load (generators, pumps and the routine workings of a ship when stopped) and capital. Since the Panama Canal data sample separately lists data on passenger and refrigerated cargo vessels, these two vessel types will be assumed to have the same cost characteristics as containerships, all three being volume-limited ship types.

Goss lists ship costs versus deadweight tonnage (dwt) for numerous ship types except containerships. For the latter case, costs are tabulated versus ship container capacity. Since the Canal statistics list neither dwt nor container capacity, some method of conversion had to be developed for this analysis.

Panama Canal average ship sizes for 1970 and 1975 are shown in Table 4-2.

Table 4-2

Average Panama Canal Ship Size
(Panama Canal net tons)

	Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
1970	13,752	-	6,207	-	-	8,699
1975	15,224	17,498	6,385	11,582	4,737	11,380

Annual Report of the Panama Canal Company, respective years.

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According to the Interoceanic Canal Study Commission (10; pp. IV-A-5 to IV-A-10) the 1970 average dwt Panama Canal experience for three ship types was as shown in Table 4-3.

Table 4-3

Average Deadweight Tonnage, 1970

Bulk Carrier	General Cargo	Tanker
27,800	10,800	19,200

These data imply that dwt is related on the average to Panama Canal net tonnage as shown in Table 4-4, permitting a conversion from the Panama Canal net tonnage figures listed in the Canal data sample to dwt, which is needed to utilize the cost figure of Goss.

Table 4-4

Deadweight Tonnage as Factor of Panama Canal Net Tonnage

Bulk Carrier	General Cargo	Tanker
2.02	1.74	2.2

In order to utilize the Goss figures for determining the size of the average cost containership transiting the Panama Canal, it is necessary to convert the data given in the traffic sample to ship container capacity. In the 1972 traffic sample, 0.8202 was the highest ratio of cargo tonnage carried to Panama Canal net tonnage of a containership transit. Assuming the ship was fully laden, then this number gives a relation between Panama Canal net tons and cargo-carrying capacity for containerships. According to Laing (11, p. 12), each container box has an average cargo capacity of 12 long tons. Thus, one Panama Canal net ton implies a ship has a container capacity of 0.8202/12, a factor

which will be used to convert the 1972 sample data to container capacity. The factor of 0.8202/12 will also be used for refrigerated cargo ships and passenger ships as these ships are similar in cost characteristics to containerships.

Applying the conversion factors to the data sample of Canal traffic, using the results to obtain total daily operating costs minus fuel costs for the fleet of ships and dividing by the number of ships analyzed, gives an average cost ship by type for the fleet of ships contained in the data sample. These are shown in Table 4-5.

Table 4-5

Long-Run Daily Cost of Ship's Time
(1975 U.S. Dollars)

Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
2,258	4,167	1,574	3,892	2,107	2,193

Goss, R. O., The Cost of Ships' Time, Her Majesty's Stationery Office, 1974.

The information in this table is based on the assumption that one British pound was convertible to 2.39 U.S. dollars in 1970, and that one 1970 dollar was equivalent to 1.36 1975 dollars.

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Several other conversions were necessary. Besides converting Panama Canal net tonnage data to either dwt or container capacity depending on the ship type, it was also necessary to convert the 1972 sample data to a 1975 base. Due to the launching of larger ships over the three-year period, the average size of ships employing the Canal has generally grown. The data were converted by assuming that the size of the 1972 average cost ship bore the same relation to the 1972 average size Panama Canal ship by ship type as did the 1975 average cost ship to the 1975 average size ship. For the General Cargo ship class, the average cost ship of the 1972 sample was 7 percent smaller than the average size ship. Since the average size General Cargo ship in 1975 was 11,110 dwt, a ship 7 percent smaller, i.e., 10,332 dwt, would be the average cost General Cargo ship for 1975. Working out the percentage relations for each ship type of the 1972 sample and applying them to the 1975 experience yielded the ship sizes shown in Table 4-6.

Table 4-6

Size of Average Cost Panama Canal Ship, 1975

Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
30,045 dwt	1,178 TEU	10,332 dwt	739 TEU	308 TEU	21,506 dwt

No costs are presented here for O/B/O's. The 1975 Canal traffic statistics do not provide a separate listing for this type ship, although in 1973 they are reported to comprise about two percent of Panama Canal net tonnage. This type ship will be absorbed into the dry bulk ship type statistics in the following analysis, the error caused being negligible. LASH vessels, comprising less than one percent of 1973 Panama Canal net tonnage, will be combined with containerships, their cost characteristics being generally similar. The recent increase in real bunker fuel costs, causing an increase in fuel costs of the ships' hotel load, was not corrected for by Goss. He states that the amount of fuel consumed is so small that a correction was not necessary.

Uniformity of Time-Related Cost Among Various Flag Ships

Goss tabulates costs for United Kingdom flag ships. Assuming that the shipping industry is competitive, these costs may be taken to represent a reasonable average for all flag ships of a given type and size. However, the industry is not competitive in the sense that various countries choose to subsidize their shipping or shipbuilding industries or provide other advantages such as liberal tax laws and safety requirements. Panamanian, Liberian and Honduran flag ships, representing about 23 percent of 1975 Panama Canal net tonnage, especially benefit from the latter two advantages and have become flags of convenience for multinational shipping firms. The cost of their ships' time will probably be less than that of equal-size U.K. flag ships. However the "Panlibhon" flagships represent a relatively small portion of Panama Canal traffic. European flag ships provide about 33 percent of Panama Canal net tonnage and should all be close in cost

to the U.K. figures. Alternatively, U.S. flag ships should have higher costs than the U.K. figures as indicated by the subsidies they receive.

The U.S. Merchant Marine Act of 1970 (13) provides construction differential and operating differential subsidies for U.S. flag ships. The construction subsidy is scheduled to reach 37 percent in 1975 (14). It is generally acknowledged that U.S. crew wages are as much as 4 or 5 times those of most other major maritime nations. Together, these imply that the cost of the time of U.S. flag ships may be twice that of U.K. flag ships.

United States flag ships constituted about 8.4 percent of total 1975 Panama Canal net tonnage. The error due to U.S. flag ships is less than 10 percent when compared to the total costs of the Panama Canal transiting fleet of ships and will be ignored, especially as its effect is probably balanced by the lower costs of Panamanian, Liberian and Honduran ships.

Estimated Daily Fuel Costs of Average Ships

According to reference (15), a 10,600 dwt break bulk ship whose average sea speed was 18 knots consumed 440 barrels of fuel oil a day at sea. This converts to approximately 67.7 tons per day. Since fuel cost about $90 per ton in 1975, this ship consumed $6,092 in fuel daily. This ship is only 3 percent larger than the average cost General Cargo ship and will be used to estimate the cost of its fuel consumption.

The determination of the additional costs due to fuel consumption for the container, passenger and reefer ships follows.

Assuming:

1) The shaft horsepower (SHP) is related to size and speed by the relation $SHP = .07N^{.5}V^{3.07}$ where N =

TEU capacity and V = speed in knots;

2) Fuel consumption is estimated to be .38 pounds/ (SHP-hour) (assumptions 1 and 2 are from Laing (11, p. 67);

3) Fuel cost is 90 dollars per long ton;

4) Ship speed is as shown in Table 4-7.

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Table 4-7

Average Ship Speed
(knots)

Container	General Cargo	Passenger	Reefer
25	18	22	20

Fuel costs per day at sea work out as shown in Table 4-8.

Table 4-8

Daily Fuel Costs for Panama Canal Average Ships
Excluding Bulk Carriers and Tankers
(1975 U.S. Dollars)

Container	General Cargo	Passenger	Reefer
17,300	6,092	9,310	4,180

For the tanker and bulk carrier, whose configuration and speed are significantly different from those of a containership, the data in Table 4-9 are useful in calculating fuel consumption.

Table 4-9

Tank Ship Operating Characteristics

	20,803 dwt	72,077 dwt
Round trip in nautical miles	10,000	22,000
Speed in knots	14.85	16.5
Sea days per round trip	28.1	55.6
Port days per round trip	4.1	3.0
Operating days per year	350	350
Trips per year	10.9	6.0
Fuel cost per year (1972)	$218,000	$824,000
Fuel cost per ton (1972)	$25	$23

Segregated Ballast Aboard Product Tankers and Smaller Crude Carriers, Department of Transportation, U.S. Coast Guard, February, 1973.

With this data and the assumption that daily fuel consumption in port is 10 percent of daily fuel consumption at sea,

it is possible to compute daily fuel consumption for the two characteristic ships of Table 4-9. One calculation will be given here for the smaller tanker.

Total days in port per year, 43.4*

Total days at sea per year, 306.4

(306.4 + 43.4/10)X = tons of fuel consumer a year = 218,000/25

This implies that X = 28.1 tons per day at sea or $2,530 per day, assuming 1975 prices are 3.75 times the 1972 level.

The equivalent cost figure for the larger tanker is $9,660 per day. Fuel consumption goes up approximately as the third power of speed so that the speed difference of the two ships accounts for approximately 37 percent of the difference in their fuel consumption. Thus the remaining 63 percent of the difference in fuel consumption between the two tankers is due to ship size. If the average Panama Canal tanker and bulk carrier are assumed to have a speed of 14.85 knots and if it is assumed that fuel consumption is a linear function of size after speed effects are removed, then the Panama Canal average tanker and bulk carrier would have the daily fuel consumption costs shown in Table 4-10.

Table 4-10

Daily Fuel Consumption Costs of Bulk Carrier and Tanker
(1975 U.S. Dollars)

Bulk Carrier	Tanker
3,260	2,610

Note that it has been implicitly assumed that the average cost ship in terms of ship time is identical to the average total cost ship (time and fuel consumption). The fleet of ships in the

*Total annual port and sea days will of course vary with the voyage length which will be reflected in yearly fuel consumption. The author's calculation takes this into account.

data sample could have been analyzed for both the cost of time and of fuel to obtain ships representative of total costs, but the additional computation would have added little to overall accuracy. Economies of scale exist in terms of fuel consumption as well as in terms of the value of ships' time. Therefore the representative ship in terms of one criterion would not differ greatly from that determined on the basis of the combined criteria.

It is assumed that the approximately nine million additional tons of fuel oil consumed by the rerouting would be marginal to the oil market, and thus its consumption would not have caused a change in the price of the oil which in turn would raise ship fuel costs.

When the figures from Table 4-8 and Table 4-10 are added to those of Table 4-5, it yields the total daily operating costs of the average ships as shown in Table 4-11. If these data are converted to operating cost per nautical mile the results are as shown in Table 4-12.

Table 4-11

Daily Operating Cost of Panama Canal Average Cost Ships
(1975 Dollars)

Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
5,518	21,467	7,666	13,202	6,287	4,803

Table 4-12

Operating Cost of Panama Canal Average Cost Ships per Nautical Mile
(1975 Dollars)

Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
15.48	35.78	17.74	25.00	13.10	13.48

Incremental Mileage of Rerouted Ships

This section develops an estimate of the additional mileage each of the average cost Panama Canal vessels would have had to travel in 1975 if the Panama Canal had been suddenly closed. Table 4-13 lists the 88 trade routes associated with the Panama Canal over which were carried sufficient quantities of cargo such as to be separately listed in the statistical tables of the Panama Canal Company's Annual Report for fiscal year 1975 (16). Table 4-13 lists:

1) A route number;

2) The origin and destination of cargo by world area on the trade route (for route #1 these are respectively the East Coast of the United States and the West Coast of the United States);

3) Specific ports in these world areas, to which it is assumed all the cargo moving on the various routes originated from and was destined to. These ports were selected on the basis of their being the main port of those countries in the regions which are the principal embarkation or debarkation countries for Panama Canal-transited cargo according to Canal Company statistics;

4) A character designating the next shortest route for the diverted cargo. M refers to Straits of Magellan, S to Suez Canal, and GH to Cape of Good Hope. Those routes on which Suez is the next shortest route contain a second mileage listing for the second shortest route, excluding Suez for "Suez Closed" calculation;

5) A mileage in nautical miles which represents the difference between the distance of a Panama Canal track and the track

Table 4-13

Difference in Distance Between Panama and Indicated Alternative for Various Trade Routes

(Letter abbreviations refer to Straits of Magellan, Suez Canal, Cape of Good Hope, East Coast, and West Coast)

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
1.	E.C. USA (New York) to W.C. USA (San Francisco)	M	7,859
2.	E.C. USA (New York) to W.C. Canada (Vancouver)	M	7,862
3.	E.C. USA (New York) to W.C. Central America (Acapulco, Mexico)	M	8,072
4.	E.C. USA (New York) to W.C. South America (Callao, Peru)	M	6,237
5.	E.C. USA (New York) to Oceania (Melbourne, Australia)	M	2,447
6.	E.C. USA (New York) to Asia (Yokohama, Japan)	GH	5,652
		S	3,326
7.	E.C. Canada (Halifax, Nova Scotia) to W.C. USA (San Francisco)	M	7,404
8.	E.C. Canada (Halifax, Nova Scotia) to W.C. Canada (Vancouver)	M	7,407
9.	E.C. Canada (Halifax, Nova Scotia) to W.C. Central America (Puntarenas, Costa Rica)	M	8,000
10.	E.C. Canada (Halifax, Nova Scotia) to W.C. South America (Callao, Peru)	M	5,732
11.	E.C. Canada (Halifax, Nova Scotia) to Oceania (Melbourne, Australia)	M	1,992
12.	E.C. Canada (Halifax, Nova Scotia) to Asia (Yokohama, Japan)	GH	5,033
		S	2,480
13.	E.C. Central America (Colon, Panama) to W.C. USA (San Francisco)	M	9,350
14.	E.C. Central America (Veracruz, Mexico) to W.C. Central America (Acapulco, Mexico)	M	9,141
15.	E.C. Central America (Veracruz, Mexico) to W.C. South America (Valparaiso, Chile)	M	4,801
16.	E.C. Central America (Veracruz, Mexico) to Oceania (Melbourne, Australia)	M	3,516

Table 4-13, continued

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
17.	E.C. Central America (Veracruz, Mexico) to Asia (Yokohama, Japan)	GH	6,965
		S	5,511
18.	E.C. South America (Maracaibo, Venezuela) to W.C. USA (San Francisco)	M	8,314
19.	E.C. South America (Maracaibo, Venezuela) to W.C. Canada (Vancouver)	M	8,317
20.	E.C. South America (Maracaibo, Venezuela) to W.C. Central America (Amapala, Honduras)	M	8,962
21.	E.C. South America (Maracaibo, Venezuela) to W.C. South America (Callao, Peru)	M	6,692
22.	E.C. South America (Maracaibo, Venezuela) to Asia (Yokohama, Japan)	GH	6,210
		S	5,476
23.	W. Indies (Oranjestad, Netherlands W.I.) to W.C. USA (San Francisco)	M	8,064
24.	W. Indies (Kingston, Jamaica) to W.C. Canada (Vancouver)	M	8,705
25.	W. Indies (Oranjestad, Netherlands W.I.) to W.C. Central America (Acapulco, Mexico)	M	8,277
26.	W. Indies (Oranjestad, Netherlands W.I.) to W.C. South America (Guayaquil, Ecuador)	M	7,604
27.	W. Indies (Kingston, Jamaica) to Oceania (Wellington, New Zealand)	M	3,888
28.	W. Indies (Havana, Cuba) to Asia (Yokohama, Japan)	GH	6,598
		S	5,151
29.	Europe (Straits of Gibraltar) to W.C. USA (San Francisco)	M	4,944
30.	Europe (Bishop's Rock) to W.C. Canada (Vancouver)	M	5,577
31.	Europe (Bishop's Rock) to W.C. Central America (Amapala, Honduras)	M	8,901
32.	Europe (Bishop's Rock) to W.C. South America (Callao, Peru)	M	3,989
33.	Europe (Bishop's Rock) to Oceania (Wellington, New Zealand)	M	760

Table 4-13, continued

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
34.	Europe (Bishop's Rock) to Asia (Yokohama, Japan)	GH	2,271
		S	-2,220
35.	Africa (Freetown, Sierra Leone) to W.C. USA (San Francisco)	M	3,576
36.	Africa (Freetown, Sierra Leone) to W.C. Canada (Vancouver)	M	3,579
37.	Africa (Freetown, Sierra Leone) to W.C. Central America (Acapulco, Mexico)	M	3,789
38.	Africa (Freetown, Sierra Leone) to W.C. South America (Valparaiso, Chile)	M	-473
39.	Africa (Freetown, Sierra Leone) to Asia (Yokohama, Japan)	GH	-44
40.	Middle East (Haifa, Israel) to W.C. USA (San Francisco)	M	4,944
		S	2,915
41.	Middle East (Haifa, Israel) to W.C. South America (Valparaiso, Chile)	M	817
42.	Middle East (Haifa, Israel) to Asia (Yokohama, Japan)	GH	1,600
		S	-5,986
43.	W.C. USA (San Francisco) to E.C. USA (New York)	M	7,859
44.	W.C. USA (San Francisco) to E.C. Canada (Halifax, Nova Scotia)	M	7,404
45.	W.C. USA (San Francisco) to E.C. Central America (Colon, Panama)	M	9,350
46.	W.C. USA (San Francisco) to E.C. South America (Rio de Janerio, Brazil)	M	770
47.	W.C. USA (San Francisco) to W. Indies (San Juan, Puerto Rico)	M	3,013
48.	W.C. USA (San Francisco) to Europe (Bishop's Rock)	M	5,574
49.	W.C. USA (San Francisco) to Africa (Capetown, South Africa)	M	714
50.	W.C. USA (San Francisco) to Middle East (Haifa, Israel)	M	4,944
		S	2,915
51.	W.C. Canada (Vancouver) to E.C. USA (New York)	M	10,562

Table 4-13, continued

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
52.	W.C. Canada (Vancouver) to E.C. Canada (Halifax, Nova Scotia)	M	7,407
53.	W.C. Canada (Vancouver) to E.C. South America (Rio de Janeiro, Brazil)	M	804
54.	W.C. Canada (Vancouver) to W. Indies (Havana, Cuba)	M	8,647
55.	W.C. Canada (Vancouver) to Europe (Bishop's Rock)	M	5,577
56.	W.C. Canada (Vancouver) to Africa (Tunis, Tunisia)	M	5,851
		S	4,885
57.	W.C. Canada (Vancouver) to Middle East (Haifa, Israel)	M	4,946
		S	1,852
58.	W.C. Central America (Panama City, Panama) to E.C. USA (Galveston)	M	9,886
59.	W.C. Central America (Panama City, Panama) to E.C. Canada (Halifax, Nova Scotia)	M	8,393
60.	W.C. Central America (Acapulco, Mexico) to E.C. Central America (Veracruz, Mexico)	M	9,141
61.	W.C. Central America (Acapulco, Mexico) to E.C. South America, (Maracaibo, Venezuela)	M	8,527
62.	W.C. Central America (Amapala, Honduras) to W. Indies (Port Au Prince, Haiti/Dominican Republic)	M	9,177
63.	W.C. Central America (Panama City, Panama) to Europe (Straits of Gibraltar)	M	5,933
64.	W.C. Central America (Amapala, Honduras) to Africa (Freetown, Sierra Leone)	M	4,224
65.	W.C. Central America (Puntarenas, Costa Rica) to Middle East (Haifa, Israel)	M	5,540
66.	W.C. South America (Callao, Peru) to E.C. USA (Galveston)	M	7,275
67.	W.C. South America (Valparaiso, Chile) to E.C. Canada (Halifax, Nova Scotia)	M	5,732
68.	W.C. South America (Guayaquil, Ecuador) to E.C. Central America (Colon, Panama)	M	6,371
69.	W.C. South America (Buenaventura, Colombia) to E.C. South America (Cartagena, Colombia)	M	9,309

Table 4-13, continued

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
70.	W.C. South America (Guayaquil, Ecuador) to W. Indies (Port of Spain, Trinidad/Tobago)	M	6,631
71.	W.C. South America (Callao, Peru) to Europe (Bishop's Rock)	M	3,989
72.	W.C. South America (Guayaquil, Ecuador) to Africa (Freetown, Sierra Leone)	M	3,116
73.	W.C. South America (Guayaquil, Ecuador) to Middle East (Haifa, Israel)	M	4,484
74.	Oceania (Melbourne, Australia) to E.C. USA (New York)	M	2,447
75.	Oceania (Melbourne, Australia) to E.C. Canada (Halifax, Nova Scotia)	M	1,992
76.	Oceania (Melbourne, Australia) to E.C. Central America (Veracruz, Mexico)	M	3,516
77.	Oceania (Melbourne, Australia) to E.C. South America (Maracaibo, Venezuela)	GH	3,507
78.	Oceania (Melbourne, Australia) to W. Indies (Port of Spain, Trinidad/Tobago)	GH	2,420
79.	Oceania (Melbourne, Australia) to Europe (Bishop's Rock)	GH	-589
		S	-1,630
80.	Oceania (Wellington, New Zealand) to Africa (Freetown, Sierra Leone)	GH	-82
81.	Asia (Yokohama, Japan) to E.C. USA (Galveston)	GH	6,801
		S	5,436
82.	Asia (Yokohama, Japan) to E.C. Canada (Halifax, Nova Scotia)	GH	5,033
		S	2,408
83.	Asia (Yokohama, Japan) to E.C. Central America (Colon, Panama)	GH	7,269
		S	6,432
84.	Asia (Yokohama, Japan) to E.C. South America (Cartagena, Colombia)	GH	6,814
		S	5,931
85.	Asia (Yokohama, Japan) to W. Indies (San Juan, Puerto Rico)	GH	5,593
		S	4,468

Table 4-13, concluded

Route Number	Trade Route	Next Shortest Route	Difference in Nautical Miles
86.	Asia (Yokohama, Japan) to Europe (Bishop's Rock)	GH	2,188
		S	-1,251
87.	Asia (Yokohama, Japan) to Africa (Alger, Algeria)	GH	1,517
		S	-3,049
88.	Asia (Yokohama, Japan) to Middle East (Haifa, Israel)	GH	1,600
		S	-5,986

U.S. Hydrographic Office, Distances Between Ports, H.O. Publication No. 151, Government Printing Office, 1965.

involving the designated next shortest sea route.

To recap briefly, mileage costs were estimated for the average ship in six ship classes of Panama Canal traffic. Table 4-13 lists incremental mileage by trade route which the Panama Canal fleet of ships are assumed to travel in the event of a Canal closure. To determine the total cost incurred by a Canal closing, it is necessary to determine which type and how many ships would travel over these routes. The incremental distances will then be multiplied times the cost per nautical mile of the ships to get a total cost. The Panama Canal Company's yearly report gives only aggregate data, and does not separately list which ships traveled over which trade routes. These data do not indicate whether only one ship traveled on each of 87 trade routes, and the other 14,913 transits were made on the remaining route. Since rerouting distances vary with the trade route and ship costs vary with the ship type, it is essential to know how many ships of which kind moved over the various routes in order to obtain a reasonable estimate of incremental costs.

In order to determine how many ships of the various ship types would have diverted to the longer sea routes, the sample of 1972 Panama Canal transit statistics was used as a representation of Panama Canal traffic patterns.

Assuming that the data are representative of Panama Canal traffic patterns, it is possible to reflate the data to get representative figures for the total number of ships by type transiting the Canal on the various routes. The reflation was accomplished by forming the ratio of the total Panama Canal net tonnage of ships transiting in 1972 to the total Panama Canal net

tonnage transiting in the 351 transit sample. The resulting figure of 39 (rounded to integer), when multiplied times the number of ships in each category transiting on the routes in the sample, gives an estimated number of oceangoing commercial transits by ship type moving on the various routes in 1972. An aggregate reflation factor was used rather than separate reflation factors for each trade route to ensure that the total traffic of the reflated data was approximately equivalent to total 1972 Panama Canal traffic.

Table 4-14 gives the results. Not all trade routes listed in Table 4-13 are listed in Table 4-14. Due to the smallness of the sample, some trade routes were not represented. The total number of transits (13,143) from the reflated data is only 2.5 percent smaller than the actual total for 1972, indicating that the reflation factor for Panama net tonnage was satisfactory for reflating the transit number data.

The percentage difference between actual 1972 total transits and the reflated figure within each ship type varied by as much as 52 percent. However, for the ship types comprising the larger number of transits in 1972 such as bulk carriers, the differences between the reflated figures and the actual 1972 experience were not substantial.

Combining the mileage data from Table 4-13 and the transit data from Table 4-14 gives the results in Table 4-15, the additional mileage that would have been traveled in 1972 by each ship type, had the Canal been closed in that year. The combining was done by multiplying the additional mileage traveled on each trade route times the number of ships moving on that route and summing

Table 4-14

Trade Route Utilization by Ship Type
1972

Route	Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
1.	39	39				156
2.	39					
3.			273		273	
4.	39		273		39	39
5.			39			39
6.	1092	78	897		39	
7.			39			
11.		78				
12.			78		39	
14.			78			156
18.	39					39
20.			39			78
21.						273
23.	78					78
25.			78			39
26.					195	78
28.			39		39	
29.	39	39	117		39	
30.	156		156			
31.			78		39	
32.			312		156	
33.			156		78	
34.			195			
38.					39	
39.					39	
43.						78
44.						39
46.						39
47.						156
48.	39					
50.	39		78			39
51.	78					
53.			39			
54.			39			
55.	195	39	78			
57.			39			
58.			195		234	39
60.						273
61.			39			39
62.			78			78
63.			117		39	
66.	117		234			78
67.			78			
69.					39	117
70.					39	78

Table 4-14, concluded

Route	Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
71.	78		312	39	195	78
72.					39	
74.	78		39		39	
75.		39				
79.	39		156	39	195	
81.	585	117	663			
82.			195		39	
84.			195			
85.			78			
86.	117		234			
87.					39	
TOTAL	2886	429	5733	78	1911	2106
			1972 Actual			
	2949	360	6047	161	2088	1882
			Percent Difference			
	-2.1	+19.1	-5.2	-52.0	-8.5	+12.1

Total of reflated sample 13,143

Total of 1972 actual 13,487

Percent difference -2.5

by ship type. This data for 1972 may be assumed to hold for 1975 since the number of transits in the oceangoing commercial ship category for both years was approximately the same (13,766 for 1972 versus 13,609 in 1975 for a decrease of 1 percent). The difference in the two year's traffic is primarily one of a growth in average ship size, which was accounted for in the ship cost tables.

Table 4-15

Additional Distance Traveled by Various Ship Types
If the Panama Canal Were Closed in 1972 or 1975
(thousands of nautical miles)

	Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker
Suez Closed	16,900	2,030	31,900	130	10,100	15,400
Suez Open	13,000	1,680	25,800	92	9,380	15,300

Unadjusted Gross Benefit, 1975

Thus far, the analysis has proceeded as if 100 percent of the Canal's traffic would reroute. However, when the analysis began, it was noted that the IRA had concluded, on the basis of their research into the characteristics of the markets affected by Panama Canal service, that only about 70 percent of Canal cargo would reroute in the event of a Canal closing, while approximately 30 percent would experience a rearrangement of buyers and sellers.

That very little trade would cease altogether in the short run after the Canal closed was another IRA conclusion, which has been adopted here. Since the 30 percent of traffic which rearranges has the alternative of rerouting, but does not, rearranging must be more desirable (cheaper) than rerouting. In some cases, rerouting and rearranging will be about equal in cost,

while in other cases rearranging is close in cost to trading through an open Panama Canal. Therefore, on the average, rearranging might be about one-half as costly as rerouting. If the mileage data from Table 4-15 are multiplied times the cost per ship-mile of Table 4-12, it yields the estimated ship mileage in 1975, had the Canal been closed and 100 percent of the traffic had rerouted. If a factor of .85 is included equaling (.7 + .3 x 1/2), to account for the 30 percent of traffic, which is assumed to rearrange at an average of one-half the cost of rerouting, it yields the estimated short-run cost in 1975 for the expected pattern of trade movement. The result of this step is shown in Table 4-16. It being likely that small volumes of cargo either cease being traded in the first year following a Canal closure or are traded by transport alternatives not here recognized, the estimates of Table 4-16 overestimate the precise willingness to pay for 1975 Panama Canal services.

Table 4-16

Unadjusted Gross Benefit of the Panama Canal, 1975
(millions of 1975 dollars)

	Bulk Carrier	Container	General Cargo	Passenger	Reefer	Tanker	TOTAL (billions)
Suez Closed	222	62	481	3	112	176	1.056
Suez Open	171	51	389	2	104	175	.892

Adjusted Estimate of Gross Benefit, 1975

The initial effort to estimate the gross benefit of maintaining an open Panama Canal in 1975 was based on assumptions regarding the incremental costs experienced by shipowners and

shippers as a result of a Panama closure. While reasonable, these assumptions were too crude to capture the complexity of the ocean transportation system. This section refines the initial estimate based on the following additional incremental costs and savings associated with a rerouting and rearranging of trade patterns following a Panama Canal closure:

1. Additional costs due to Suez tolls and insurance for the "Suez Open" situation;
2. Additional costs for delayed cargo and containers;
3. The time saved which would otherwise be spent by ships waiting for Panama Canal transit;
4. The cost of rerouting ships through the foul weather prevailing in the area of the Cape of Good Hope and Cape Horn;
5. Additional costs incurred by noncommercial and non-oceangoing ships by a Canal closure.

Suez Canal Uncertainties

The Suez Canal was last closed in 1967 during an Arab-Israeli war and remained closed until June 5, 1975. Its availability is largely dependent on the state of Egyptian-Israeli relations and involves significant political uncertainties. Although not open until late fiscal year 1975, its availability is treated as variable, i.e., it is alternately assumed that it was permanently closed and was permanently open, starting in 1975 in order to:

1. Illustrate the methodology of sensitivity analysis in the context of Panama Canal analysis;

2. Assess the sensitivity of the estimated Panama Canal economic value to variations in a Suez-related assumption.

Since the Suez Canal was closed for most of 1975, a more realistic assumption for the Suez Open case would be that it first opened permanently in 1976. Likewise, a more realistic assumption for the Suez Closed case would be that Suez was open for at least the first six months of fiscal year 1976 before closing again. The assumption made here has the effect of increasing the spread in estimated economic Panama Canal value due to Suez uncertainties. Since the Suez Canal uncertainty is only one of many relevant to forecasting future Panama Canal demand levels, the cumulative effect of these many uncertainties would be to spread wider the plausible envelope of the estimated economic value of the Panama Canal than would be achieved by making a realistic range of assumptions on the Suez uncertainty alone. Thus, the assumption on Suez uncertainty produces a spread in the final estimated Panama Canal value more in keeping with the plausible range, and does this in a manner convenient for calculation.

Suez Toll and War Risk Insurance

The toll for use of the Suez Canal, as established in June, 1975, was approximately $2 per Suez net ton for laden transits and $1.60 per net ton for ships in ballast. Suez net tonnage measurement rules yield measurement tonnages approximately equal to the net ship tonnages measured according to Panama Canal rules, as revealed by sample toll calculations shown in Bes (17).

Table 4-13 implies that an open Suez Canal might be attractive for ships moving on trade route numbers 6, 12, 17, 22, 28,

34, 40, 42, 50, 56, 57, 79, and 81-88. From Table 4-14, the number of ships from the reflated Panama Canal traffic sample which moved over these routes in 1972 is as shown in Table 4-17.

Table 4-17

Number of Ships Moving on Routes Whose Next Shortest Track Is Via the Suez Canal

Bulk	Container	General Cargo	Passenger	Reefer	Tank
1,872	195	2,847	39	390	39

Assuming that the ratio of ballast to laden transits for these ships would have been the same as for overall 1975 Panama Canal traffic--85% to 15%--this implies an average Suez toll per net ton of $1.94.* Assuming that the average Suez net tonnage of these ships is as shown in Table 4-2 for 1975, their total Suez Canal toll payment would have been as shown in Table 4-18.

Table 4-18

Cost of Suez Canal Transit
(millions of 1975 U.S. dollars)

Bulk	Container	General Cargo	Passenger	Reefer	Tank	TOTAL
53.6	6.7	35.3	0.9	3.5	0.9	101

After three months of Suez Canal operation, Lloyd's of London and other insurance companies reduced the war-risk (insurance) tax imposed on vessels using the Suez Canal (18) from .0875 percent of the value of the cargo carried to .0375 percent.

Goss (9) lists the value in 1970 pounds sterling per long

*With the exception of tank ships, the proportion of ships by ship class diverted to Suez is similar to the proportion by ship class found in overall Panama Canal experience. Thus the assumption that the ratio of ballast to laden ships in the Suez transiting group is similar to the ratio of ballast to laden found in total Panama Canal traffic is reasonably justified.

ton of three cargo types imported into and exported from the United Kingdom.

In 1975 U.S. prices, these are: dry bulk, 65.65; other dry cargo, 763.19; and tanker cargo, 95.08. The value for tanker cargo has been increased by a factor of 3.75 over and above the necessary conversions from 1970 sterling to 1975 dollars to reflect the nearly fourfold increase in the price of oil which occurred extraneous to general price inflation over the five-year period. Assuming that the war-risk tax of .0375 percent applied for all of 1975 and that it is maintained at this level indefinitely, the cost of using the Suez Canal for each cargo type is $0.0246, $0.2862, and $0.0356 per long ton respectively.

To estimate the volume of cargo likely to be moved through the Suez Canal, one may assume that the total yearly cargo moved by ships of a given class is uniformly distributed among all ships of that class. Thus, tankers lifted 24,696 thousand long tons through the Panama Canal in 1975 and, according to Table 4-14, there were 2,106 transits of tankers in the reflated sample. According to Table 4-17, 39 tankers might divert to Suez, implying a diversion of 39/2,106 x 24,696 = 457.33 thousand long tons of tanker cargo. Working out similar figures for the other ship types yields the results shown in Table 4-19.

Table 4-19

Estimated Volume of Panama Canal Cargo Diverted to Open Suez Canal (thousand long tons)

Bulk	Container	General Cargo	Passenger	Reefer	Tank	TOTAL
51,295	4,300	11,215	81.0	744.5	457.3	68,093

Multiplying the war-risk tax times the appropriate cargo value and tonnage and summing yields $6 million, the total estimated tax on 1975 cargo movements.

Delay of Cargo

In the first year following a Panama Canal closure, the 70 percent of Panama Canal cargo which is rerouted onto longer ship tracks will experience a delay in its delivery, thus incurring some form of inventory cost. Inventory costs are usually treated as an interest charge against tied-up capital. In the event of an increased tie-up time of capital, inventory costs should rise, and this should be acknowledged in the analysis.

First, the nature of the costs involved should be clarified. An interest charge is a means of allocating over time the cost of creating and maintaining inventories. Thus, analysis should focus on the effect of a Canal closure on the size of inventories. The effect of a Canal closure on a specific trade, such as Cadillacs moving from Detroit to Chile, would be to increase the number of Cadillacs maintained in the pipeline, for example, from a level of ten to a level of thirteen. Once the new level of cars in the pipe is reached following a Canal closure, cars move into and come out of the pipe at the same rate as before. Thus, the effect of a Canal closure on this trade would amount to a once-and-for-all increase in costs amounting to the cost of three Cadillacs.

To assess the incremental inventory costs, one must estimate the length of stretch in the supply pipe and then estimate the value of the shipped commodities needed to refill the pipe. The stretch will take place only once, applying only to the first

shipment of goods. Thereafter, the pipe will be refilled and no more costs will be incurred. It will be assumed that there are six trades of interest, each trade being identified with each of the six ship classes. The relevant logic is as follows:

1) Each of the six trades carries a given value of commodities in a year;

2) Each of the six trades experiences a given number of ship trips per year;

3) Therefore, each of the six trades carries a given value of goods per trip;

4) After closing the Panama Canal, the first trip following is delayed a certain percentage of average trip time;

5) Therefore, the relevant inventory cost is the given percentage of time delay multiplied times the given value of goods carried per trip;

6) Total costs are the sum of the costs of the six trades.

Table 4-15 gives the additional distance traveled by the various ship types if the Panama Canal were closed and all traffic was rerouted. Converting these distances to additional days using the ship speeds listed in Table 4-7 gives the results shown in Table 4-20.

Table 4-20

Additional Days at Sea by Ship Type in First Year After Panama Canal Closure

	Bulk	Container	General Cargo	Passenger	Reefer	Tanker
Suez Closed	47,700	3,380	73,800	246	21,000	43,200
Suez Open	36,800	2,800	59,700	174	19,500	42,900

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One might assume that container, general cargo, passenger, and reefer ships carry commodities valued at the level of liner cargo, according to Table 4-21. Table 4-22 lists the quantity of cargo carried by the various ship types through the Panama Canal in 1975.

Table 4-21

Specific Value of Cargo, United Kingdom Experience
(1975 dollars per long ton)

Dry Bulk	Liner Cargo	Tanker Cargo
65.70	763	95.10

R. O. Goss, The Cost of Ships' Time, Her Majesty's Stationery Office, London, 1974, p. 38.

Table 4-22

1975 Panama Canal Cargo Carried in Ship Types
(10,000 long tons)

Bulk	Container	General Cargo	Passenger	Reefer	Tanker
7,908	946	2,258	16	365	3,470

Annual Report of the Panama Canal Company, Table 9, 1975.

Dividing the total number of days of delay in Table 4-20 by the number of yearly ship transits in each ship type of the data sample of Table 4-14 gives the average number of days' delay per ship trip in each ship category. The results are given in Table 4-23.

Table 4-23

Average Days Delayed by Canal Closure per Ship Trip

	Bulk	Container	General Cargo	Passenger	Reefer	Tanker
Suez Closed	16.5	7.9	12.9	3.2	11.0	20.5
Suez Open	12.7	6.5	10.4	2.2	9.8	20.4

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Table 4-24 shows the average length in days of a Panama Canal-related ship trip by ship type.

Table 4-24

Average Number of Days at Sea of Panama Canal Ship Trip

Bulk	Container	General Cargo	Passenger	Reefer	Tanker
24.2	13.8	17.1	17.1	11.8	10.7

Table 4-24 shows that the average length of a Panama Canal transiting bulk ship trip is 24.2 days and Table 4-23 shows that closing the Panama Canal would add 68 percent to the length of this average trip in the event that the Suez Canal was not available and would add 52 percent if the Suez Canal were available. Since a ship may spend two days in port per one-way trip, the average bulk ship can make 13.4 laden trips per year. Thus, about 0.68/13.4 of the total value of one year's shipments of bulk commodities must be added to the pipeline in the event of a Panama Canal closure, assuming 100 percent of the cargo is rerouted. Assuming that only 70 percent of the cargo is rerouted, the remaining 30 percent being rearranged at no inventory cost, a factor of .7 x .68/13.4 of the total yearly value of transported bulk commodities represents the inventory cost. Multiplying this factor times the value per ton of cargo listed in Table 4-21 and times the number of tons of cargo listed in Table 4-22 yields $184 million, the incremental bulk cargo inventory cost. Working out similar figures for the other commodities yields Table 4-25.

Note that this table overestimates the inventory cost since, as Brandes (19) has pointed out, the amount of agricultural products, petroleum and metals in transport would probably not be affected by an increase in delivery times. Since, according to

the original IRA study (6), the 30 percent of Canal cargoes expected to be rearranged would consist of crude oil, petroleum products, bananas, sugar, iron and steel products, iron ore, miscellaneous ore and scrap metal, the assumption that 30 percent of Canal cargoes would not incur an inventory cost is well justified. The assumption that the remaining 70 percent of cargoes would incur costs as here estimated is reinforced since only grains (13 percent of total Canal cargo) and a few minor agricultural and metals products have not been excluded from the 70 percent of Canal cargoes assessed an inventory cost.

Table 4-25

Inventory Cost Resulting from Panama Canal Closure
(millions of 1975 dollars)

	Bulk	Container	General Cargo	Passenger	Reefer	Tanker	TOTAL
Suez Closed	184	130	497	1	71	160	1,043
Suez Open	143	107	400	-	64	160	874

Delay of Containers

Table 4-26 shows the capital cost of uninsulated and insulated 20-foot container boxes.

Table 4-26

Capital Cost of 20-Foot Container Boxes
(1975 U.S. dollars)

Uninsulated	Insulated
2,720	4,680

Fairplay, September 6, 1973, p. 698.

In 1975, 9,459 thousand long tons of cargo was transported through the Panama Canal on containerships. Assuming, in accor-

dance with Laing (11, p. 12), that on the average a container carries 12 long tons of cargo, about 788,250 containers transited the Panama Canal in 1975. Ignored here are the numbers of containers carried by reefer and general cargo ships which have not been estimated. Assuming 70 percent (or 551,775) of these containers are subject to an average delay of 7.9 days, if the Panama Canal had closed and if Suez was also closed in accordance with Table 4-23, then the cost of a change in container inventories is as shown in Table 4-27. This assumes that all the containers were uninsulated. The calculations are based on the same analysis as for delayed cargo. For the Suez Open case, a delay of 6.5 days is assumed.

Table 4-27

Inventory Cost of Delays to Containers
(millions of 1975 U.S. dollars)

Suez Closed	45
Suez Open	37

The totals of the cargo and container box inventory costs approximately equal the first-year incremental shipowners' costs. The size of the inventory costs, coupled with the ship ownership costs, is such as to cast doubt on the assumption that most 1975 Panama Canal cargo trade would have continued in the first year following a Canal closure. However, the outlook for a continuance of trade at relatively undiminished levels is not as pessimistic as the high cost figures may imply. These inventory costs are incurred only once, and shipowners reacting to expected levels of costs for several future years may choose to maintain current trade patterns rather than react to a one time cost.

Secondly, ships were relatively cheap during 1975 due to the depressed market. Thirdly, shipping contracts are still apt to be honored so that, to a first approximation, significant cost increases will not affect short-run trade patterns. Furthermore,

even if a portion of trade ceases, the loss of satisfaction involved is only marginal so that a 20 percent cessation of trade would imply perhaps only a 10 percent downward adjustment in the estimate of benefits presented here. Finally, given the uncertainty in other components of the analysis, mainly estimates of future benefits and costs, the high cost estimates of Table 4-25 and 4-27 do not seem unduly distorting of overall confidence in the analysis.

Saved Waiting Time

Were one to assume that the first-year penalty incurred by a Canal closure would be a rerouting of ships onto longer tracks, the penalty would be the net increase in miles traveled. This overstates the net additional costs incurred by the time saved, which would otherwise have been spent waiting for Panama Canal transit. The time spent in Canal Zone waters* has averaged 18 hours for the past several years (20, p. 115). However, an 18-knot ship would normally traverse the Canal's 50-mile length in about 2.7 hours, so that transiting the Canal penalizes the ship

*Canal Zone Waters Time: Total elapsed time from when a vessel is ready for transit until the transit is completed, including the Canal transit time, averages approximately 17 hours. When arrivals are heavy and a vessel cannot be boarded and cleared promptly, the vessel is considered ready for transit one hour after arrival.

Time spent in fueling, cargo handling and other optional operations is not included. The average Canal Zone Waters Time for all vessels is considered a reliable indicator of the quality of service rendered, and is used as the basic criterion of capacity at various levels of Canal operation. To obtain the complete time penalty incurred by transiting ships, it is necessary to add the time required for the boarding and inspection of the ship by Canal authorities and the time for the calculation of the toll and its securing by the Company admeasurer. This process takes approximately one hour, but is not considered to be a part of the Canal Zone Waters Time.

about 15 hours on the average, a time which would be saved if the Panama Canal were avoided. Thus, if the figures of Table 4-5 (value of ship time) are multiplied times 15/24, and again times the numbers of transiting ships listed in Table 4-14, the result is the costs saved in ships' time resulting from a Panama Canal closure for the Suez Closed case. These results are shown in Table 4-28.

For the Suez Open case, yearly Panama Canal transits shown in Table 4-14 must be reduced by the number of ships diverted to an open Suez, shown in Table 4-17. The numbers remaining are those which sail around the Capes, regardless of Suez availability. That portion of the total number of transits which sail around the Capes save the Panama Canal waiting time. How these savings may be calculated has already been discussed. Those ships which sail via Suez also save the Panama Canal waiting time, but incur the Suez Canal waiting and transit time.

The Suez Canal is approximately 91 nautical miles long. An 18-knot ship could transit this distance, if unimpeded, in about five hours. However, it takes an average of approximately 15 hours to transit the Suez Canal. Assuming that the time spent in idle waiting is equal for both Suez and Panama (eight hours), then a ship transiting the Suez Canal loses about 18 hours. Since it would lose 15 hours transiting Panama, the net time lost is about three hours. Multiplying 3/24 times the daily costs found in Table 4-5, and again times the number of transits listed in Table 4-17, gives the total additional costs incurred by those using the Suez Canal. Subtracting from this the value of the time saved by the portion of traffic which avoids Suez whether or not

it is open yields a total net savings shown in Table 4-29 under the Suez Open heading.

Table 4-28

Value of Ships' Time Saved by Panama Canal Closure
(millions of 1975 U.S. dollars)

	Bulk	Container	General Cargo	Passenger	Reefer	Tank	TOTAL
Suez Closed	4	1	5	-	2	3	15
Suez Open	1	-	2	-	2	3	8

Foul Weather Sailing

If the Panama Canal were closed most of the fleet of ships which otherwise would have transited the Panama Canal would divert to rounding either the Cape of Good Hope or Cape Horn. The foul weather around these Capes would result in additional costs from cargo damage, hull damage, increased probability of ship loss from weather-related causes, reduced ability to keep to schedules and additional fuel consumption due to unfavorable or excessive winds and currents. Lones (21) reports that optimum track ship routing can save a ship from 1.5 to 4.5 percent on its transit time and 4 percent or more on its fuel consumption on transocean (non-Cape) tracks. An optimum track can be found by forecasting unfavorable weather conditions and routing ships around them. Time and fuel were considered by Lones to be the primary sources of savings from improved routing. These figures are for only marginal improvements in the costs of weather-related delays since even an optimum track is not a perfect track in that the latter is both one of minimum distance and ideal weather conditions.

There is no convenient way to estimate the alternative cost

of foul weather sailing. Insurance premiums do not cover the costs of ship delays or additional fuel consumption, the primary cost items of foul weather sailing.

However, reference (22) contains data on the average performance of a 20-knot LNG tanker in various wind and sea states. This source reports that a 20-knot ship experiencing 35-knot headwinds can make only 14 knots. Easterly 35-knot winds are reported (23) to be common in the winter months in the far southern latitudes. Tail winds add only marginally to the ship's speed. Actual ship performance depends on the characteristics of the ship, on the judgment of the ship's captain, and on the type and weight of cargo carried.

One might conclude from the above information that for one-half of the year, one-half of the traffic circling the Cape of Good Hope and Cape Horn pays an average penalty of 30 percent in ship performance while in southern waters. If southern waters is interpreted to mean about 800 nautical miles of sailing, a calculation can be made of the total weather-related penalty brought about by a Panama Canal closure.

For the Suez Closed case, 1/2 (season factor) x 1/2 (direction factor) x 0.7 x number of ships in each ship class in Table 4-14 (number of ships rerouted) x 0.3 (weather penalty) x ship mileage cost in Table 4-12 x 800 nautical miles = total penalty. For the Suez Open case, the number of ships in each class should be reduced by the number of ships assumed to sail via the open Suez, as listed in Table 4-17. The results of this computation are listed in Table 4-29.

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Table 4-29

Foul Weather Penalty
(millions of 1975 U.S. dollars)

	Bulk	Container	General Cargo	Passenger	Reefer	Tank	TOTAL
Suez Closed	1.8	.7	4.2	.1	1.0	1.2	9
Suez Open	.6	.4	2.1	.1	.8	1.2	5

This section is concluded by noting that the analysis here and previously of the Suez Open case assumes that ship routing is entirely a function of cost minimization and that mileage is the only factor relevant to costs. A more realistic assumption would be that routing costs depend not only on mileage, but also on Suez tolls, foul weather, Suez Canal waiting time, and the inventory cost. The net effect of correcting for these additional factors would probably be small.

Noncommercial Shipping

In 1975, 2.4 million Panama Canal net tons of ship capacity transited the Panama Canal in the non cargo and cargo/passenger or non- oceangoing* ship categories. This represented 1.7 percent of total 1975 Panama Canal net tonnage. This traffic may be divided into three categories:

1) U.S. Government traffic (oceangoing and non-oceangoing), representing 0.9 percent of total Panama Canal net tonnage;

2) Free traffic (ships belonging to the Governments of Panama and Colombia), representing less than 0.01 percent; and

*An oceangoing ship is at least 300 Panama Canal net tons.

3) Non-oceangoing commercial traffic, naval vessels and others, representing 0.8 percent.

No analyses have been undertaken to estimate the benefit this traffic derives from Panama Canal usage. It will be assumed that benefits are proportional to the Panama Canal net tonnage of the traffic. Such an assumption implies that net total benefits may be increased by approximately two percent to account for this traffic. This percentage is negligible and will be ignored.

Adjusted Estimate of Gross Benefit, 1975

The refinements to the results of Table 4-16 (Unadjusted Gross Benefit of the Panama Canal, 1975) are now summarized. Positive signs in the following summarized figures mean that the adjustment is added to the figures of Table 4-16, while negative signs indicate that the adjustment is to be subtracted. All figures are in millions of 1975 dollars.

	Suez Closed	Suez Open
Suez Toll and War Risk Insurance	0	+107
Inventory Cost of Cargo Delay (one time cost)	+1043	+874
Inventory Cost of Container Box Delay (one time cost)	+ 45	+ 37
Saved Waiting Time	- 15	- 8
Cost of Foul Weather Sailing	+ 9	+ 5
Noncommercial Shipping	0	0

If all of the corrections to the results of Table 4-16 are added or subtracted as the signs indicate, the results are as shown in Table 4-30.

Table 4-30

Total Gross Benefits of Panama Canal Services, 1975
(billions of 1975 dollars)

Suez Closed	2.14
Suez Open	1.90

Gross Benefit, 1985

In order to obtain an estimate of net present discounted benefit for the Panama Canal, it is necessary to estimate the Panama Canal benefits and costs for each year following 1975. One may either estimate net benefits for each year and then discount them to the present, or derive the time streams and discounted present values of benefits and costs separately, subtracting costs from benefits at the end to obtain a net figure. The second technique will be used here.

A variation of the principle of "benefits equal alternative costs" will be used to estimate gross 1985 Panama Canal benefits.

Estimated Benefit per Cargo Ton

An examination of the costs of those alternatives which are likely to be used in future years provides a clue to the probable trend of gross benefits. So long as the Panama Canal continues to operate with no prospect of its being closed and so long as the tolls charged by the Canal are less than the cost of investing in and operating competing transport alternatives, shippers and shipowners will continue to use the Canal, and no investments

will be made in other alternatives.

If the Panama Canal were to close, alternatives would be developed with the intent of providing the service which previously had been supplied by the Panama Canal. These alternatives were described in Chapter 3. Thus, one would expect that, after the Panama Canal permanently closed, the cost of alternatives would decline in succeeding years as new alternative modes of transport were brought on stream whose costs were less than the costs of the alternatives available in the short run. Competition would probably lead to an accompanying reduction in charges and the willingness to pay for the new transportation services would drop. This is equivalent to saying that with the passage of time, and as a result of the new demand situation, the international marine transport system will move farther out along its long-run supply curve. Thus, the gross benefit of the Canal's services per ton of cargo would decline. The demand curve for Panama Canal services for each future year would reflect these effects.*

It is likely that a number of years would be required for the shipping system to completely adjust to the "Panama Closed" situation. The digging of mines, the development of new agricultural regions and the deepening of ports which is associated with the use of larger ships would take about 10 years to complete. Thus, there would be an adjustment period of about 10 years. The gross future benefit per cargo ton provided by Panama

*Note that willingness to pay for Panama Canal service may exist even if the service is not actually available.

Canal service would decline from a high level in 1975 to a minimum in 1985. Thereafter, the gross average benefit per cargo ton probably will remain relatively constant (or decline slowly, as is now happening), while growth in the total number of cargo tons which could potentially benefit from Panama Canal service will cause a growth in the total gross benefit.

In 1975 the Panama Canal gross benefit per cargo ton was as shown in Table 4-31.

Table 4-31

Average Panama Canal Gross Benefit per Cargo Ton, 1975
(1975 dollars)

Suez Closed	Suez Open
15.22	13.51

By 1985, when all adjustments have been made, it is very likely that most of the benefit per ton created by the Panama Canal will have been competed away. Considering the probable direction of the Canal benefit trend explored above and on the basis of a further support to be presented below, by 1985 about 80 percent of the gross average benefit per cargo ton of the Panama Canal will probably have been competed away. Were this to be the case, the 1985 average benefit per ton would be as shown in Table 4-32.

Table 4-32

Average Panama Canal Gross Benefit per Cargo Ton, 1985
(1975 dollars)

Suez Closed	Suez Open
3.04	2.70

Support for 1985 Benefit Estimate

The benefit estimate of Table 4-32 appears reasonable in view

of some investigative results obtained by the International Research Associates (IRA). A 1973 study prepared by IRA estimated the price sensitivity of Panama Canal cargo demand. This was part of a larger effort to estimate the economic value of the Panama Canal and more will be said on the larger effort below. The IRA results of interest here are their estimates of the response of Panama Canal cargo movements to toll prices.

The Economic Value of the Panama Canal (24) employed the technique of making

> estimates of probable responses to higher toll rates... from general industry and trade information. The reasoning and conclusions were then tested in discussions with persons in the industries concerned and were revised as necessary.

Figure 4-4 may be used to illustrate this more clearly. The IRA study estimated the quantity of cargo demand (Q) for Panama Canal service which would occur in 1985 assuming various rates of toll increase (P) were instituted in 1974. In effect, they estimated the long-run demand curve for Panama Canal service for 1985.

Table 4-33 from IRA indicates the fractional change in estimated 1985 Panama Canal cargo tonnage by commodity type which could be expected if Panama Canal tolls were raised by 0%, 15%, 25%, 50%, 100%, or 150% in 1974. These estimates assumed a base toll of $0.90 per Panama Canal net ton laden and $0.72 per net ton ballast. Thus, Table 4-33, together with estimates of 1985 Panama Canal cargo by commodity type (see Table 4-34, compiled by IRA) can be used to estimate the long-run demand curve for Panama Canal services for 1985.

The total demand curve can be estimated from the data of

FIGURE 4-4

Long-Run Demand Curve, Schematic

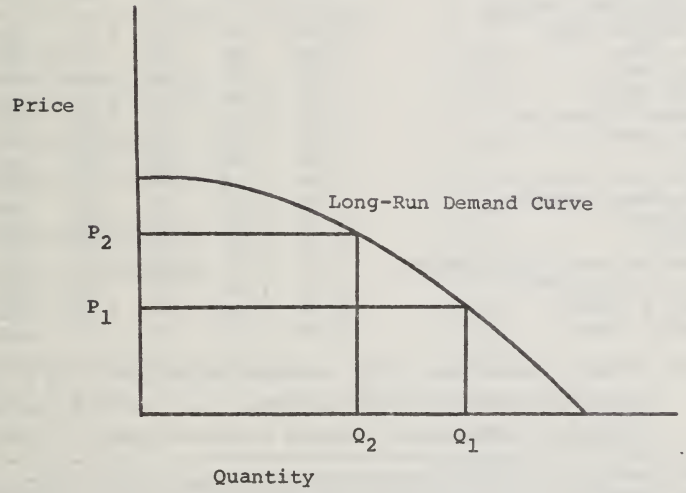

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TABLE 4-33

Estimated Long-Run Sensitivity of Cargo Tonnage, by Commodity, to Selected Toll Increases*

Cargo	Percent by which Present Toll Rate is Increased:					
	0%	15%**	25%	50%	100%	150%
Wheat	1.00	1.00	1.00	.96	.74	.61
Coarse Grains	1.00	1.00	.98	.92	.76	.60
Bananas	1.00	1.00	.93	.73	.33	.20
Sugar	1.00	1.00	1.00	.97	.70	.54
Soybeans	1.00	1.00	.98	.94	.83	.68
Lumber	1.00	1.00	1.00	1.00	.84	.68
Wood Pulp, Paper and Paper Products	1.00	1.00	1.00	1.00	.86	.70
Phosphates	1.00	1.00	.96	.91	.76	.60
Fertilizers, Potash and Fish Meal	1.00	1.00	1.00	1.00	.83	.67
Iron Ores	1.00	.91	.88	.76	.39	.15
Misc. Ores	1.00	1.00	1.00	.98	.91	.84
Scrap Metal	1.00	1.00	1.00	1.00	.67	.50
Alumina & Bauxite	1.00	1.00	1.00	1.00	.86	.71
Misc. Metals	1.00	1.00	1.00	1.00	.81	.67
Coal	1.00	.98	.94	.89	.61	.37
Crude Petroleum	1.00	1.00	.94	.88	.59	.33
Petroleum Products	1.00	1.00	.94	.88	.68	.49
Chemicals	1.00	1.00	1.00	1.00	.83	.66
Sulfur	1.00	1.00	1.00	1.00	.83	.66
Other Non-Metallic Minerals	1.00	1.00	1.00	1.00	.83	.66
Iron & Steel Mfrs.	1.00	1.00	.97	.95	.80	.65
Autos & Trucks	1.00	1.00	1.00	1.00	.83	.65
General Cargo	1.00	1.00	.99	.98	.77	.66

NOTE: Figures shown are (1985 tonnage associated with a specific toll increase) ÷ (1985 projected with no toll increase). Tonnage figures were rounded to the nearest 100,000.

*J.E. Howell, E. Solomon, The Economic Value of the Panama Canal, report prepared by International Research Associates, Palo Alto, for the Panama Canal Company, December 1973.

** The 15 % column data is from "Review of Sensitivity Estimates Contained in Panama Canal Toll Increases; Effect on the U.S. Economy," letter report prepared by International Research Associates, Palo Alto, California, for the Panama Canal Company, February 1974.

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TABLE 4-34

Estimated Panama Canal Commerical Cargo Tonnage, 1985
(thousands of long tons)

Cargo	
Wheat	5,109
Coarse Grains	21,128
Bananas	2,342
Sugar	6,127
Soybeans	12,345
Lumber	7,805
Wood Pulp, Paper & Paper Products	6,115
Phosphates	4,700
Fertilizers, Potash & Fish Meal	5,125
Iron Ore	3,300
Miscellaneous Ores	4,655
Scrap Metal	3,375
Alumina & Bauxite	1,537
Miscellaneous Metals	2,174
Coal	14,000
Crude Petroleum	19,900
Petroleum Products	13,600
Chemicals	5,155
Sulfer	1,059
Other Non-Metallic Minerals	1,109
Iron & Steel	11,543
Autos & Trucks	2,080
General Cargo	30,659
TOTAL	184,942

"Revenue of Sensitivity Estimates Contained in Panama Canal Toll Increase; Effect on the U.S. Economy," letter report to the Panama Canal Company, International Research Associates, Palo Alto, California, February 1974.

Tables 4-33 and 4-34 by first estimating the demand for each commodity group. For the commodity group Wheat, note from Table 4-34 that 1985 cargo tonnage is estimated at 5,109 thousand long tons, assuming no toll increase (in real terms) from the 1973 level. From Table 4-33 note that for toll increases up to 25 percent, no diminution in the estimated level of cargo is expected. According to this table (see note on Table 4-33), the ratio of 1985 tonnage, given that tolls increase by 25 percent, to the 1985 tonnage projected with no toll increase, is 1.00. For a toll increase of 100 percent, however, only 0.74 x 5,109 thousand, equaling 3,781 thousand long tons of wheat is estimated to transit the Panama Canal. Working out similar calculations for all entries in Table 4-33 yields the quantities estimated to transit the Panama Canal, given various percentage toll increases. All that remains is to sum these cargo quantities to get total demand and to convert percentage toll increases into prices in order to obtain data for the total demand curve.

To convert percentage toll increases to prices, note that in 1973 the Panama Canal transited 126.1 million long tons of cargo and collected $111.0 million in tolls from commercial oceangoing ships for an average of $0.88 per long ton of cargo. Data for 1973 are used since IRA research was conducted that year. Taking $0.88 per cargo ton as the average effective toll or price (not strictly true, but this figure has varied by only a few percent in previous years during a period of constant toll rates so that one may reasonably assume the ratio of toll income per cargo ton is closely tied to the toll rate), then a 15 percent increase in toll rates would yield an average price of $1.01

per cargo ton, a 25 percent increase would yield a price of $1.10, and increases of 50, 100 and 150 percent yield prices of $1.32, $1.76 and $2.20 respectively. Table 4-35 lists total cargo versus prices in 1975 dollars and Figure 4-5 plots the resulting demand curve.

Table 4-35

Panama Canal Long-Run 1985 Demand Schedule
(thousands of long tons, 1975 dollars)

% Increase	Price	Quantity
0	1.05	184,942
15	1.21	184,365
25	1.32	179,988
50	1.58	173,433
100	2.11	135,829
150	2.64	104,781
200	3.17	0

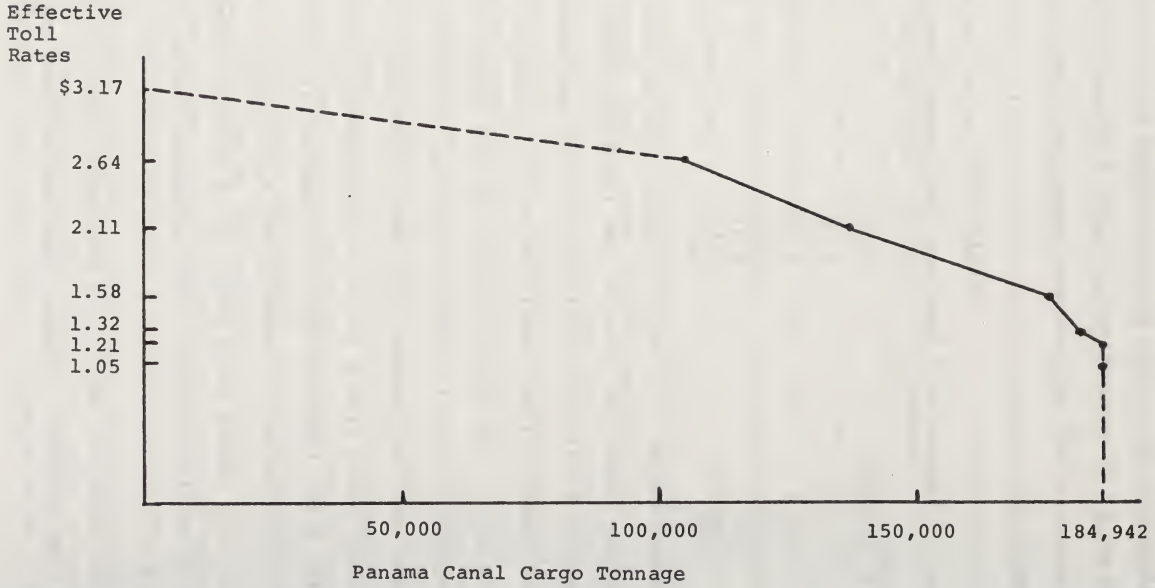
Since Tables 4-33 and 4-34 apply only to laden transits of oceangoing commercial vessels, the resulting demand curve does not apply for ballast transits nor to the approximately 1.5 percent of Canal traffic classified as non-oceangoing or noncommercial or both. The dashed portions of the demand curve of Figure 4-5 represent areas in which no data are available, so the assumption was made that Panama Canal demand declines linearly with increasing price from a 150 to a 200 percent price increase, and that for price increases above 200 percent all 1985 Panama Canal traffic is diverted to lower-priced alternatives. This produces a section of demand curve which is in general agreement with the trend of declining demand, with increasing price as seen in Figure 4-5.

The uncertain portion of the demand curve on the lower right is of less interest, assuming that the marginal cost of transiting

FIGURE 4-5

Long-Run Demand Curve, 1985

(thousands of long tons; 1975 dollars)



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cargoes through the Canal in excess of 185 million tons costs more than $1.05 per ton. Then it would cost more than it is worth to provide service for this traffic at the Panama Canal so that this portion of the curve may be ignored, assuming also that the Canal authorities do not charge less than a $1.05 average effective toll (1975 prices) in 1985. If tolls are lowered, marginal costs would probably exceed marginal benefits on the additional traffic attracted, with some cargoes reaping subsidies and a net cost being incurred on these cargoes.

The use of straight lines to connect the six data points on the 1985 demand curve assumes that the shape of the actual demand curve is fairly regular. Since the actual demand curve is as apt to lie above as below these connecting lines, the lines would be reasonable estimators of the actual demand curve.

The area under the curve in Figure 4-5 is $463 million and applies for the Suez Closed case since at the time the IRA estimates were made the Suez Canal was closed and there was no prospect for its reopening.

Assuming that the ratio of ballast transit benefits to laden transit benefits will be the same in 1985 as the ratio (0.134) of ballast Panama Canal net tons to laden Panama Canal net tons in 1975, then 1985 ballast transit benefits come to approximately $62 million. Benefits for those transits considered to be non-commercial or non-oceangoing will be ignored so that total gross benefits for 1985 come to $525 million in 1975 dollars. Dividing this by the number of 1985 potential cargo tons (184.9 million) yields an average benefit per ton of $2.84.

Since the IRA estimates were made prior to the OPEC oil price

increase of late 1973, gross average Canal benefits per cargo ton for 1985 are likely to be higher than the IRA estimated. Thus, on this basis, the IRA results would tend to be underestimates of the true value per ton. The IRA estimates would tend to be overestimates, however, because 1975 ship costs were especially low and these were not recognized by the IRA estimates. Therefore, their work generally supports the estimates contained in Table 4-32.

Estimated Time Stream of Gross Benefits

Padelford and Gibbs (20, p. 94) have published a forecast for 1985 Panama Canal cargo of 181.75 million tons. This estimate allows for the effect of the 1973 oil price increase. Should 1985 cargo tonnage reach this level, the total estimated willingness to pay for Panama Canal service in 1985 would be as shown in Table 4-36.

Table 4-36

Total Gross Benefit of Panama Canal in 1985
(millions of 1975 dollars)

Suez Closed	Suez Open
552	491

To obtain a complete time stream of benefits, it is necessary to estimate benefits for the 1976-1984 period and for the years beyond 1985. Given the depressed state of the world economy (notwithstanding the encouraging sign for the U.S. economy in 1976), it is likely that benefits will rapidly reach long-run levels following 1975 because of the powerful financial incentive to readjust the maritime trade system. For example, by May 1976,

there had been no appreciable change in the volume of laid-up ship tonnage since September of 1975. The availability of ship tonnage would permit a rapid adjustment of the trade system to a Panama Closed situation.* Thus, the average benefits per cargo ton should decline rapidly with the number of cargo tons traded remaining

*The continued excess of ship tonnage reinforces the assumption that little new ship construction would have occurred in 1975 or 1976 had the Panama Canal closed permanently in 1975.

constant or declining slightly before growing again beyond the year 1978. An exponential expression should adequately describe the level of gross benefits in the intervening years since such an equation is nonlinear.*

Assuming that an exponential expression of the form Economic Value (millions of 1975 dollars) = $Ae^{B(year)}$ where A and B are unknown constants and e is the constant 2.7183, then it is possible to solve for A and B for both of the possible parameter sets of the analysis using 1975 and 1985 data to give the two equations necessary to solve for the unknowns A and B. Since significant inventory costs are incurred in 1975, these must be subtracted from the 1975 data to ensure that the inventory costs do not affect benefit estimates for following years. Working out the math gives the values of A and B shown in Table 4-37 using 1975 as year 0 in the formula.

Table 4-37

Coefficients for Interpolation, 1975-1985

	Suez Closed	Suez Open
A	1,052	989
B	-.06449	-.07002

Substituting the values of A and B back into the exponential equation and working out the values for the years 1976 through 1984 yields the results shown in Table 4-38.

The cargo tonnage forecast presented by Padelford and Gibbs (20, p. 94) implies that Panama Canal cargo tonnage will grow at

*Use of an expression to describe the total yearly benefits is more convenient than estimating both average benefits per ton and the number of tons of cargo for each relevant year, while remaining reasonably accurate. Lack of precise foresight into future trade patterns and prices cautions against using more precise techniques.

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Table 4-38

Gross Yearly Benefit of Panama Canal, 1976-1984
(millions of 1975 dollars)

	1976	1977	1978	1979	1980	1981	1982	1983	1984
Suez Closed	986	924	866	812	762	714	670	627	589
Suez Open	922	859	802	747	697	650	606	565	527

about 3.7 percent annually from 1985 to the year 2000. This rate will probably continue until the year 2005 at which time the Panama Canal is expected to saturate with traffic. Thereafter, total benefits can only grow if average benefits per cargo ton grow. Since such growth in average benefit is unforeseeable, is unlikely and, since changes in the assumption of no growth in average benefit have little effect on discounted present values, the earlier assumption of no growth in average benefit per cargo ton will be maintained. Thus, total benefits grow until the year 2005 and are constant thereafter until the year 2040. Beyond the year 2040 the effect of discounting is to make benefits and costs irrelevant for present evaluation and thus effects beyond the year 2040 may be ignored.

The complete time stream of benefits has now been developed. If the time stream of benefits is discounted to yield a total present value using three possible social rates of discount, the results are as shown in Table 4-39. The significance of the social rate of discount will be described below.

Table 4-39

Estimated Gross Present Benefit of the Panama Canal
(billions of 1975 dollars)

	8%	10%	12%
Suez Closed	12.1	10.0	8.69
Suez Open	10.9	9.07	7.86

PART B

The analysis of the economic value of the Panama Canal is continued in Part By by estimating the discounted cost of the Canal operation. In Part C the costs of the operation will be subtracted from the benefits which are estimated in Part A yielding the net benefits of the Panama Canal operation. The net benefits will then be interpreted.

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Economic Cost of Panama Canal Operation

In order to estimate the net present benefit of the Panama Canal, it is necessary to obtain a time stream of estimated costs of the Panama Canal operation, discount these to the present and subtract the result from the benefit estimates of Table 4-39.

The principle of "with and without" is especially useful in the task of identifying costs. In the event of a Panama Canal closure, many activities would cease. Should the Canal reopen, presumably, although not necessarily, these same activities would resume as would the associated expenditures. The expenditures which would resume following a reopening of the Panama Canal constitute the costs of the Canal operation since, without a functioning Canal, these expenditures would not occur, and with a functioning Canal they would occur. While it is not strictly in accord with the principle to identify Canal costs as those expenditures which would cease with a Canal closing, in practice this latter approach should identify expenditures which would qualify as Canal costs according to the more correct approach. Using the "costs are those expenditures which cease following a Canal closure" criterion is generally easier than the more correct approach.

Costs in 1975

Aside from the operation and direction of the Canal itself, the activities of the Canal Zone Government and the U.S. defense establishment in the Zone and elsewhere, as well as the military posture of other countries, might be affected by a Canal closure. The administrative organization known as the Canal Zone Government is integral to the operation of the Canal, and without the Canal there would not be a Zone Government. The net cost of the

Canal Zone Government for 1974 (latest available) was $26 million and the administrative and operation expenses of the Canal proper were $151 million (25, p. 26). In 1975 dollars these two would come to $197 million. Major General Harold R. Parfitt, Governor of the Panama Canal Zone, has stated that opening the Suez Canal would result in a reduction of Panama Canal traffic, but this would have little effect on Company marginal costs in the short run (25, p. 56).

Following a Canal closure, were military expenditures to be reduced, these could be identified as the defense cost of the Canal.* Should closing the Canal result in a net increase in defense expenditures, according to the accounting principle, the existence of the Canal had the effect of reducing military costs by the net amount of expenditure change. The change would be identified as a benefit produced by the Canal operation. United States military expenses incurred in Panama in 1974 were estimated at $176 million (25, p. 84). In 1975 dollars this would be $196 million.

Barring an actual cessation of Panama Canal activities, it is impossible to estimate the resulting effect on the military expenditures of the United States and other countries. Very likely the change in the military expenditures of other countries (either up or down) would be minimal. Since the U.S. military budget serves a symbolic role, a reduction of the U.S. budget, following a Canal closure, would probably be strongly resisted. Furthermore, there would be strong bureaucratic pressure within

*These need not be limited to changes in U.S. military expenditures since cost and benefit estimates to this point have been estimated from a world perspective.

the U.S. military establishment to maintain force levels since reducing these would also reduce the number of officer billets. Conceivably, a closure of the Panama Canal could result in a net increase in U.S. military expenditures for a larger navy perhaps since some might argue that increased levels of military risk would result from the closing unless a buildup of forces was undertaken. Having no way to foretell the eventual outcome of the tug-of-war which would likely result between the hawks and the budget-cutters in Congress, it will be assumed that no net change in U.S. military expenditures would result from a Canal closing, and that the military defense cost of the Canal is zero.

Depreciation and interest are not considered since these are sunk costs which would be incurred whether the Canal operated in 1975 or not, and are thus not attributable to the Canal operation. Certain other costs for special services appear on the Canal Company's books which are not considered here as they are incidental to the workings of the Canal proper, having their own demand and supply conditions. Thus, total estimated costs for the 1975 Canal operation are taken as approximately $197 million.

Admittedly, the assumptions used to derive Panama Canal costs ignore many factors. Closing the Canal and ending the Zone Government may lead to a larger or smaller U.S. embassy in Panama and a Panamanian embassy in the United States or may alter the size of U.S. aid payments to Panama, now at a level of $20 million per year. These differences in what would be without the Canal should be reflected in the calculations. Likewise, the benefits and costs of hospitals, libraries, schools and other organizations in Panama may be affected by the Canal's presence, and these changes should be accounted for. As an example, closing the Canal may affect the number of scholar-

ships available to Panamanian students within and outside of Panama. There is a marine biology research station in Panama which might be closed. Also, U.S. military aid for disaster relief such as following the Managua and Guatemala earthquakes and when hurricanes strike in the Isthmus may be reduced. Individually, these items are small and are not investigated.

The effect of the Canal's existence on Panama's Gross National Product (GNP) has been estimated to be quite large. The effect occurs largely through that country's provision of services to passing ships and tourists on those ships. However, from a world view, these represent redistribution payments to Panama since, if the Canal were to close, these activities would probably continue, but they would be relocated in other countries. Likewise, the $2.3 million annuity payment made by the United States to Panama represents a transfer payment. More will be said on these matters when discussing the allocation of Canal benefits below.

Costs in 1985 and the Time Stream of Costs

Canal defense and Zone Government costs in 1985 will probably be unchanged from 1975 levels ($0 and $29 million respectively). Operation and maintenance costs of the Canal proper will probably increase in proportion to the cargo tonnage transited, plus 0.5 percent yearly. The 0.5 percent addition is justified on the basis that the Canal's capacity is limited and, as ultimate transit capacity is approached (estimated to be 26,800 transits a year which should be achieved in the year 2005), the marginal cost of accommodating transits must rise, thus raising both average and total costs. This rise in cost is caused by increasing conges-

tion of the waterway, requiring more finely tuned schedules for transit, wider Canal approaches and greater water supplies for navigation and lockage purposes.

If Panama Canal cargo tonnage is forecast to be 181.75 million long tons in 1985 and was 140.1 million in 1975, this implies that total cargo will grow 30 percent over the 10-year period at a 2.6 percent yearly growth rate. Adding one-half percent more for a yearly cost growth rate of 3.1 percent yields an estimated Canal operating cost increase of 36 percent, growing from $168 million in 1975 to $228 million in 1985.* Thus, the cost of the Panama Canal operation at 1985 traffic levels in 1975 dollars is $29 + $228, equaling $257 million. This is less than the estimated gross benefit of the Canal in 1985 of approximately $500 million, implying that the Canal will still be competitive for providing transit service in 1985, provided it adjusts its toll properly. Furthermore, if benefits grow at a rate of 3.7 percent yearly from 1985 to 2005 and costs grow at a rate of 3.7 + 0.5 or 4.2 percent after 1985, by 2005 the gross benefit of the Canal will still exceed costs so that, on the basis of the estimates assumed here and assuming that Canal authorities charge tolls sufficient to cover costs, but not for the purpose of reaping profits, then the Canal should remain an attractive alternative for maritime trade for the foreseeable future.

Assuming that Canal traffic levels, and thus operating costs, remain constant until 1978, reflecting the present depressed state of the world economy, that costs grow to the estimated 1985 level

*It is assumed that Panama Canal operating costs would not vary significantly if the Suez Canal were open or closed. The 1985 cost estimate assumes the cost of transiting noncommercial or non-oceangoing ships is the same in 1985 or in 1975.

exponentially, thereafter that costs grow at a rate of 4.2 percent until 2005 and then are constant until the year 2040, the complete time stream of Canal costs is identified. This time stream may then be discounted to the present using three possible social rates of discount. The results of this step are as shown in Table 4-40.

Table 4-40

Estimated Discounted Present Cost of the Panama Canal
(billions of 1975 dollars)

8%	10%	12%
4.02	3.04	2.42

PART C

In Part C the costs as estimated in Part B are subtracted from the benefits estimated in Part A to yield the net benefits. The results of the esitmate of net benefits are then interpreted.

Net Present Value of the Panama Canal

The difference between the discounted benefits produced by Panama Canal services listed in Table 4-39 and the discounted cost of providing those services as listed in Table 4-40 is the estimated first approximation of the net aggregate consumption benefit of the Panama Canal as viewed by the world. The figures of Table 4-41 provide these estimates.

Table 4-41

Estimated First Approximation of the Net Present Aggregate Consumption Value of the Panama Canal (billions of 1975 dollars)

	8%	10%	12%
Suez Closed	8.08	6.96	6.27
Suez Open	6.88	6.03	5.44

In order that these figures not be interpreted out of context, the primary qualifications and assumptions of the foregoing analysis are now repeated.

1) In computing the gross economic value of the Canal, it

was assumed that all trade continued to take place after a Canal closing in 1975 despite the increase in transportation costs entailed. However, an increase in costs would almost certainly lead to a diminution of trade within the first year after the cost increase took place. Insofar as trade ceased, the value estimates in Table 4-41 must be reduced.

2) It was assumed that the only two alternatives available in the short run for continued transportation of trade were rerouting of ships or rearrangement of trade patterns. Other cheaper alternatives may already be available, however, for at least a small portion of traffic. These might include air shipment, use of the U.S. mini-bridge, or the chartering of larger ships to be used on alternative ship routes. Insofar as cheaper alternatives than the ones assumed here are employed, the figures of Table 4-41 must be reduced.

3) The willingness to pay of non-oceangoing and noncommercial traffic was not counted. Including the benefit reaped by these traffic categories would result in an increase in the net benefit estimates of Table 4-41.

Although it is likely that a precise estimate of the true individual willingness to pay for Panama Canal services would be different from those of Table 4-41 because the refinements would add to, as well as reduce, the benefit estimates of that table, it is not possible to determine if Table 4-41 underestimates or overestimates true Panama Canal net benefits.

An important assumption made in the preceding analysis was that a sudden closure of the Panama Canal would not lead to a boom in the shipping market. The existence in 1975 of significant

levels of overcapacity in that market made such an assumption plausible. The figures in Table 4-41 cannot be updated to 1976 or later simply by correcting for changes in price levels due to inflation and for changing levels of Panama Canal traffic, unless the same assumption is made concerning employment in the shipping market. Because the market is so volatile, it is seldom, if ever, in a state characterizable as equilibrium. Nevertheless, 1975 was, without doubt, a year of depression and overcapacity in the shipping market.

Allocation of Benefits

An interesting question is: To whom does the Panama Canal value accrue and who would be hurt were it to close? The Canal's value accrues first to shipowners, then to commodity traders, and ultimately to the producers and consumers of Panama Canal-transited commodities.

Most of the benefit is reaped by the producers and consumers because competition in the commerce and ship operating businesses effectively prevents excess profits from accumulating.

There are other economic effects associated with the operation of the Panama Canal, such as the annuity payment, purchases of U.S. military personnel, and the services to ships provided by Panamanian nationals. These latter economic effects will be analyzed subsequently. To determine how the net benefit of the Panama Canal is allocated among larger geographic groupings requires an answer to a difficult problem: How are changes in transportation costs allocated between buyers and sellers of the transported commodities?

Price Elasticities of Supply and Demand in World Trade

Devanney et al. (26) have shown that the allocation of the costs of transportation between sellers of a transported commodity and buyers of that commodity is determined by the elasticity of the supply curve for the commodity in its country of origin and the elasticity of the demand curve in its country of destination. Specifically, if the curves are exponential of the form $Q = b_d P^{a_d}$ where Q is the quantity, P is price and b_d and a_d are parameters for describing the demand curve, while a similar formula with parameters b_s and a_s describes the supply curve, then the share of the transportation cost borne by the importer is proportional to $|a_s/(a_d-a_s)|$ while the exporter's share is proportional to $|a_d/(a_d - a_s)|$. For exponential supply and demand curves the a's are the slopes of the respective logarithms of the curves and hence equal to the respective elasticities E. It follows that the ratio of the importer's share of the transport charges to the exporter's share is equal to the ratio of the supply elasticity to the demand elasticity or E_s/E_d. The following paragraphs present evidence that developing countries generally tend to export in markets in which the elasticity of supply is low relative to the elasticity of demand. Conversely, they import in markets where the elasticity of demand is low relative to the elasticity of supply. Thus, the developing countries tend to bear the transportation charges both for imports and for exports and any increase in transportation charges would come primarily out of their pockets, while a decrease in charges would be to their benefit.

In support of this argument, Table 4-42 presents the price elasticities for the supply of exports from four developing coun-

tries as determined by Houthakker and Magee (27). This table is based on a logarithmic regression of volume versus price data running from 1951 to 1966, and thus these estimates are subject to a number of errors. However, for present purposes all that is required is the general level of these supply elasticities.

Table 4-42

Price Elasticity of Supply of Exports

Chile	.09
Colombia	.18
Peru	.70
India	.23

Houthakker, H. S. and S. P. Magee, "Income and Price Elasticities in World Trade," Review of Economics and Statistics, May 1969.

Houthakker and Magee have also concluded that the elasticity of demand for imports is in the range of 0.20 to 0.50 for developing nations.

On the other hand, the same source reports an average supply elasticity of 1.02 for 10 developed countries. If these estimates are correct, developing nations generally bear between 83% and 66% of the freight bill for their imports from the developed nations. The average demand elasticity for imports of six developed nations was 1.03, in which case the developing nations pay between 85% and 67% of the export bill. Thus, for total trade, approximately three-fourths of the transportation cost appears to be borne by developing nations.

The demand and supply elasticities described above should be carefully interpreted. The Houthakker and Magee study assumes that the demand and supply elasticities are constant throughout

all relevant price levels. For a non-marginal change in the cost of trading as is being investigated here, objections to this assumption could be raised. The study assumed that the selling and buying of international goods is driven by the profit motive with price acting as the signal to entrepreneurs. Embargoes for political purposes remain a possibility, but are excluded from consideration. It does not seem likely that a closing of the Panama Canal would result in a change in trade patterns for any reason other than a change in the cost of trade. The demand and supply elasticities described above were determined by averaging out 15 years of international trade data. The resulting elasticities are average numbers, and do not purport to describe the sharing of costs in any single year. Beginning about 1970 developing nations began to demonstrate more aptitude at extracting from developed countries the latter's willingness to pay for imported goods. Raw materials such as oil and bauxite are the primary examples of commodities traded under new circumstances. Copper prices, on the other hand, have slumped badly since 1970. While a trend exists, the Houthakker and Magee results are probably still reasonably valid for the majority of international trade flows.

Allocation of Economic Benefit

It will be assumed that West Europe, North America and Japan constitute the developed world and that benefits of trade between these areas are split equally.* The rest of the world will be considered developing, and the benefits of trade between developing countries will also be assumed to be split equally. For trade between developed and developing countries, it will be assumed

* Socalist country trade contributes little to Panama Canal traffic.

that 75 percent of the benefits of trade accrue to the developing nations and 25 percent to the developed countries, using cargo tonnage as the index. Table 4-43 gives the percentage of total Panama Canal cargo tonnage moving between various regions and countries of the world on trade routes passing through the Panama Canal in 1974. Assuming that these percentages for cargo tonnage approximately represent the share of Canal-generated economic benefits available on each route, then one can estimate the portion of benefits accruing to various regions of the world using the results of the above examination of the relative elasticities of demand and supply in world trade.

The assumption that benefits are proportional to cargo tonnage is consistent with the method used for estimating the gross economic value of the Panama Canal in 1985, but is inconsistent with the method used to obtain a value estimate for 1975. The latter analysis was based on an examination of ship tonnage movements over various trade routes. Since rerouting of the Panama Canal fleet is an important alternative only in the early years after a Panama Canal closing, an allocation of benefits based on cargo tonnage and not ship movements is not unreasonable. Note that the brunt of the rerouting and rearranging costs in the early years would probably be borne by importers as a consequence of shipping contracts. This is not reflected by the elasticity-based method of estimating the allocation of benefits.

To obtain an estimate of the net Panama Canal economic benefits reaped by the United States, multiply the "Percent of Canal Trade"

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TABLE 4-43

Percent of Panama Canal Transited Cargoes

Traded Between Various World Regions

Trade Between Developed Countries:	Percent of Canal Trade
USA - USA	3.17
USA - Japan	28.35
U.S.A. - Europe	4.34
Japan - Europe	4.43
Trade Between Developing Countries:	
Canada - Canada	.53
Canada - Central America	.03
Canada - South America	.49
Canada - Oceania	.50
Canada - Asia (excluding Japan)	.63
Canada - West Indies	.22
Canada - Middle East	.01
Canada - Africa	.10
Central America - Central America	1.04
Central America - South America	3.09
Central America - Oceania	.07
Central America - Asia (excluding Japan)	.10
Central America - West Indies	.80
Central America - Middle East	.01
Central America - Africa	.03
South America - South America	3.04
South America - Oceania	.01
South America - Asia	.10
South America - West Indies	2.77
South America - Middle East	.04
South America - Africa	.05
Oceania - West Indies	.27
Oceania - Middle East	0
Oceania - Africa	0

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TABLE 4-43, concluded

	Percent of Canal Trade
Asia (excluding Japan) - West Indies	.82
Asia (excluding Japan) - Middle East	.02
Asia (excluding Japan) - Africa	.05
Trade Between Developed and Developing Countries	
USA - Canada	2.78
USA - Central America	1.64
USA - South America	8.95
USA - Oceania	2.39
USA - Asia (excluding Japan)	11.54
USA - West Indies	1.96
USA - Middle East	.04
USA - Africa	.38
Japan - Canada	1.01
Japan - Central America	.18
Japan - South America	1.30
Japan - West Indies	1.22
Japan - Middle East	.06
Japan - Africa	.50
Europe - Canada	3.53
Europe - Central America	1.05
Europe - South America	3.20
Europe - Oceania	2.28
Europe - Asia (excluding Japan)	.84

Annual Report of the Panama Canal, Tables 13 and 14, 1974.

(Canada is designated a developing country because it tends to export raw materials (grains, petroleum, fertilizers) through the Panama Canal as generally done by developing countries. However, it tends to import raw materials (sugar, bauxite, nitrates) as generally done by developed countries. Were one to consider Canada a developed country, its percentage share of Panama Canal benefits as listed in Table 4-44 would drop from 7.0 percent to 3.1 percent according to the 3/4 - 1/4 split of benefits used here with the aggregate benefits reaped by the rest of the world rising by 3.9 percent.)

column of Table 4-43 for each U.S.-related trade times 1/2 if the U.S. trading partner is another developed nation or times 1/4 if the partner is a developing nation, and sum the products. The results of this step are shown in the second column of Table 4-44 for all world regions and for all Panama Canal cargo tonnage.

To obtain an estimate of a region's share of economic benefit, multiply the percentages in column two times the net economic benefits of the Canal as listed in Table 4-41. The results of this step are shown in column three of Table 4-44.

Annuity Payment to Panama

It is also necessary to assess the effect of a Panama Canal closure on the level of transfer payments to the Republic of Panama. Table 4-44, column four, indicates the allocation of the net present value of the annuity payment from the United States to the Republic of Panama. Of the total yearly payment in 1975 of $2.3 million, $1.8 million came from the U.S. Treasury, while the remainder came from tolls income. The Treasury payment constitutes a transfer payment from the United States to Panama. Were one to assume that closing the Canal would result in an end to the payments while an open Canal would mean a continuation of these payments to at least 2040 then, in net present value terms, these payments constitute a cost to the United States of maintaining the Canal operation as shown in Table 4-44, while they constitute a benefit to Panama.

Panama's Earnings from Shipping and Other Services

Several economic effects of operating the Panama Canal have yet to be assessed. One of these is the benefit earned by Panamanians as a consequence of their provision of services to passing

TABLE 4-44

Summary of Benefits

(millions of 1975 dollars)

8%, Suez Closed

	% Share	Economic	Annuity	Shipping and Other Services	Sum of Benefits
U.S.A.	27.0	2,183	-24	-3,079	-920
Japan	17.5	1,414		-1,218	196
Europe	7.1	573		-494	79
Canada	7.0	566		-487	79
Central America	5.2	420	+24	+11,638	12,082
Oceania	3.9	315		-271	44
South America	16.5	1,333		-1,148	185
Asia (excluding Japan)	10.6	856		-738	118
West Indies	4.4	355		-4,146	-3,791
Middle East	.1	8		-7	1
Africa	.7	57		-49	8
TOTAL	100.0	8,080	0	0	8,080

10%, Suez Closed

U.S.A.	27.0	1,880	-20	-2,053	-193
Japan	17.5	1,218		-812	406
Europe	7.1	494		-329	165
Canada	7.0	487		-325	162
Central America	5.2	362	+20	+7,759	8,141
Oceania	3.9	271		-181	90
South America	16.5	1,148		-766	382
Asia (excluding Japan)	10.6	738		-492	246
West Indies	4.4	306		-2,764	-2,458
Middle East	.1	7		-5	2
Africa	.7	49		-32	17
TOTAL	100.0	6,960	0	0	6,960

TABLE 4-44, continued

12%, Suez Closed

	% Share	Economic	Annuity	Shipping and Other Services	Sum of Benefits
U.S.A	27.0	1,693	-17	-1,540	136
Japan	17.5	1,097		-609	488
Europe	7.1	445		-247	198
Canada	7.0	439		-244	195
Central America	5.2	326	+17	+5,819	6,162
Oceania	3.9	244		-136	108
South America	16.5	1,035		-574	461
Asia (excluding Japan)	10.6	665		-369	296
West Indies	4.4	276		-2,073	-1,797
Middle East	.1	6		-3	3
Africa	.7	44		-24	20
TOTAL	100.0	6,270	0	0	6,270

8%, Suez Open

U.S.A.	27.0	1,858	-24	-3,079	-1,245
Japan	17.5	1,204		-1,218	-14
Europe	7.1	488		-494	-6
Canada	7.0	482		-487	-5
Central America	5.2	358	+24	+11,638	12,020
Oceania	3.9	268		-271	-3
South America	16.5	1,135		-1,148	-13
Asia (excluding Japan)	10.6	729		-738	-9
West Indies	4.4	303		-4,146	-3,843
Middle East	.1	7		-7	0
Africa	.7	48		-49	-1
TOTAL	100.0	6,880	0	0	6,880

TABLE 4-44, concluded

	% Share	Economic	Annuity	Shipping and Other Services	Sum of Benefits
10%, Suez Open					
U.S.A.	27.0	1,629	-20	-2,053	-444
Japan	17.5	1,055		-812	243
Europe	7.1	428		-329	99
Canada	7.0	422		-325	97
Central America	5.2	314	+20	+7,759	8,093
Oceania	3.9	235		-181	54
South America	16.5	995		-766	229
Asia (excluding Japan)	10.6	639		-492	147
West Indies	4.4	265		-2,764	-2,499
Middle East	.1	6		-5	1
Africa	.7	42		-32	10
TOTAL	100.0	6,030	0	0	6,030
12%, Suez Open					
U.S.A.	27.0	1,469	-17	-1,540	-88
Japan	17.5	,952		-609	343
Europe	7.1	386		-247	139
Canada	7.0	381		-244	137
Central America	5.2	283	+17	+5,819	6,119
Oceania	3.9	212		-136	76
South America	16.5	898		-574	324
Asia (excluding Japan)	10.6	577		-369	208
West Indies	4.4	239		-2,073	-1,834
Middle East	.1	5		-3	2
Africa	.7	38		-24	14
TOTAL	100.0	5,440	0	0	5,440

ships. Due to the constraint imposed by the water depth in the Canal locks, transiting ships frequently cannot pass the Canal carrying both a full load of cargo and a full load of fuel. Ship masters will often plan ahead so that their ships arrive for transit with low fuel reserves, but drawing the maximum permissible transiting draft. The intent of the masters is to transit the Canal, then load bunker fuel on the opposite side. Provision of fueling services to passing ships earns Panama a considerable value added income. Further, the presence of the Canal draws tourists to Panama. Many tourists debark either before or after the ocean liner which brought them transits the Canal. This too adds to Panama's income. Finally, the 11,000 U.S. servicemen (not counting their dependents) who are located in Panama do much of their shopping in the Republic. All of these activities provide income for Panama which has not yet been analyzed. A rough estimate of the value added income earned by Panama as a result of the Panama Canal presence can be made by assessing the effect of the Canal on Panama's Gross Domestic Product (GDP)*.

The Interoceanic Canal Study Commission reports that moving Panama Canal operations out of Panama and relocating them in Colombia at the site of a new canal would reduce Panama's GDP by an estimated 26 percent (10, p. I-41). This result does not appear to

*Gross Domestic Product: a measure of the total flow of goods and services produced in one year. It is obtained by valuing outputs of goods and services at market prices, and then aggregating. Note that all intermediate products are excluded, and only goods used for final consumption or investment goods are included. This is because the values of intermediate goods are implicitly included in the prices of the final goods. The word "gross" means that no deduction of the value of expenditure on capital goods for replacement purposes is made. Because income arising from investments and possessions owned abroad is not included, only the value of the flow of goods and services produced in the country is estimated.

be unreasonable since Weil et al. (28, p. 60) reports that about 50 percent of Panama's 1970 population of 1.4 million persons resided within Panama's three central provinces of Panama, Colón and San Blas, these provinces comprising about 25 percent (28, p. 272) of Panama's land area.

According to United Nations statistics (29) Panama's 1973 GDP is $1,458 million at 1973 prices. One Panamanian balboa exchanges for one dollar* as a result of a 1904 agreement between Panama and the United States (30). The New York Times (31) reported in 1975 that the growth rate of Panama's economy had slowed from 8 percent in 1973 to 2 percent in 1974 due to the general weakening of the world shipping market. Assuming an average annual rate of growth of 2 percent gives what should be a reasonable estimate of Panama's 1975 GDP of $1,517 million in 1973 dollars.

Considering how closely tied the currencies of Panama and the United States are, both probably experience

*The UNIDO Guidelines (3, pp. 213-215) point out that official exchange rates may not properly reflect the value of foreign exchange in the domestic economy and even free markets, where discounts are sometimes available for the currencies of developing countries, are not good indicators of the true value of foreign exchange earnings or subsidized foreign exchange earning exports, thus divorcing the market exchange rate from the true value of the exchange. Insofar as this is the case in Panama, one dollar would be worth more than one balboa, the conversion ratio being a shadow price.

However, Weil (28, p. 200) points out that Panama imposes no foreign exchange restrictions on its citizens, and that gold or foreign exchange may be moved freely anywhere, giving Panamanians the greatest currency freedom in the world, and implying that official exchange rates probably do reflect the true domestic value of foreign exchange.

approximately the same rates of inflation. For the United States, inflation has been about 7 percent since 1973. Assuming a continuation of a 7 percent rate of inflation, the 1975 GDP of Panama in 1975 prices would have been approximately $1,737 million.

In the "with" situation of the Panama Canal being reopened and remaining open, Panama's GDP may be assumed to stagnate at zero growth for a period of years until 1977 when the increasing strength of the U.S., European and Japanese economies impacts favorably on Panama, causing it to resume its 1950-1971 growth trend of 6.5 percent yearly as reported by Merril et al. (32, p. 4). At 1975 prices the present value of 65 years of the GDP produced by Panama under this scenario is shown in Table 4-45.

Table 4-45

Present Value of Republic of Panama's Gross Domestic Product (billions of 1975 dollars)

8%	10%	12%
60.0	41.5	30.8

Without the Panama Canal, Panama's net present valued GDP will probably be about 20% less than it would have been otherwise. This conclusion is based on the fact that the income to Panama resulting from the Panama Canal has been a declining percentage share of Panama's total income over the past several years with no prospect for a change of this trend (33). Thus, closing the Canal would probably cost Panama less as a percent of its net present valued GDP than it would as a percent of GDP in the first year. Table 4-46 presents the rough estimate of the net present value of the Panama Canal to the Republic of Panama as a result of the indirect income associated with the Canal's operation.

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Table 4-46

Republic of Panama's Indirect Income from Panama Canal
(billions of 1975 dollars)

8%	10%	12%
12	8	6

Were the Panama Canal to close permanently, tourism in Panama would probably decline with an approximately offsetting increase in tourism elsewhere, perhaps in Bermuda or Puerto Rico. Likewise, ship masters would no longer call at Panama to buy fuel,* and other fueling centers would probably benefit from increased business. Therefore, it is not unreasonable to suppose that Panama's loss in service-related income would be approximately made up by the gains of others. The offset may be more or less than Panama's loss, however. The world is not competitive and there may be unsuspected benefits to be gained by a relocation of shipping services and tourism. The infant industry concept that profitable enterprises can be created given the proper protection or temporary advantage is relevant. Furthermore, while some of the services may be relocated to areas so as to provide equal or superior satisfaction at the same cost, others may locate in less desirable areas. In other words, if the relocations result in a non-marginal change in the efficiency or desirability of the service provided, there may either be a net gain or loss of satisfaction. The effects and magnitudes of these changes have been little explored so that they can be discussed only generally. Nevertheless, they are important and should be recognized.

It will be assumed here that the net change in world benefits resulting from a relocation of Panama's indirect income earning

* It is assumed that the returns to Panama are relatively insensitive to the price of fuel.

activities associated with the Canal operation is zero. While the overall change may be zero, this certainly will not be the case for the various world regions, some gaining and others losing. The redistribution of the income-earning activities will now be estimated.

Reference (33) reports that in 1973 approximately $160 million of Panama's Canal-related income was due to the presence of 40,000 U.S. citizens (including dependents) working for the Canal operation or as military personnel. This figure represents 10.6 percent of Panama's GDP that year or 42 percent of the Republic's Canal-related income. According to Reference (25, p. 84), military expenses at the Canal in 1973 came to $174.4 million. Since labor costs generally make up 70 percent of the Defense Department's budget, about $122 million of the $160 million contributed by U.S. personnel in Panama was probably from military personnel and the remainder of the $160 million came from civilian employes of the Canal Zone Government and Canal Company. In accordance with assumptions made earlier, were the Panama Canal to close, probably no net change would occur in the size of the U.S. military force, but the men might either remain in Panama or else be moved. Very likely, were the Canal to close, either the military men would remain in Panama or, if that were not possible, they would be relocated to other U.S. military installations in the West Indies. These other installations were described in Chapter 2. Following a Canal closure, very likely the U.S. civilians working for the Panama Canal Company and Canal Zone Government would return to the United States.

With these assumptions and data, it is possible to divide

the portion of Panama's GDP related to the Panama Canal operation into the following categories:

Source of Income	Percent of Canal-Related Income
Shipping and Other Services	58
Canal Zone Government and Company Personnel	10
U.S. Military Remaining in the West Indies	32

Were one to accept these figures, then about 32 percent of the Republic's Canal-related income will accrue to the West Indies region following a Panama Canal closure; about 10 percent of the income will return to the United States via the returning U.S. civilians; and 58 percent, in the form of services to ships and tourists, will go elsewhere.

Obtaining an estimate of the allocation of services among the various world regions following a Panama Canal closure poses a problem. A careful investigation of the nature of the services and of the alternatives for supplying them would provide the requisite data for making the allocation. This has not been undertaken thus far, and will not be undertaken here. As a rough approximation to the true allocation, the percentages for allocating the direct benefits of Panama Canal service may be used. Presumably, those countries trading through the Panama Canal will be most affected by a Canal closure. Therefore, one might expect that the direct benefits of Panama Canal service would be related to the indirect benefits, and thus use of the percentages for distributing direct benefits is reasonable as a crude estimator of the allocation of indirect benefits. Note, however, that the algebraic sign of the benefits is negative for most world regions

since closing the Panama Canal would profit them to the extent that services relocated from Panama to the other regions. Table 4-44, column five, shows the effect of allocating shipping and other services to the various world regions.

Summing the entries in Table 4-44 horizontally yields the net effect due to several important direct and indirect economic effects of reopening the Panama Canal, were it to have closed for any reason in 1975. Since these results are important, the following pages will be devoted to commenting upon and interpreting them. A caution should be raised at this point about the foregoing analysis. The estimated effects of a Canal closure on associated shipping and other services in Panama are rough estimates at best.* The size of the effects is large, yet little is known about them and even less is known about how they should be allocated among the world regions. The effect of these services appears as negative numbers in Table 4-44 for the United States (and most other world regions) because the services would have probably relocated to the United States, were the Panama Canal to close. Reopening a closed Canal would have cost the United States the service-associated income.

The estimates contained here show that indirect economic effects are perhaps equally important as the direct economic effects of Panama Canal operation. It was desirable to obtain

*Were one to believe that the contribution of the Panama Canal to Panama's GNP were in the range of 13 percent as stated, but not documented in reference (34), the net present discounted economic value of the Panama Canal to the United States for a 10 percent social rate of discount and for the Suez Closed sceanario would be approximately $245 million. This represents an increase of $438 million over the results presented in the text above. Reducing the estimated size of the indirect benefits of the Canal has the effect of increasing the estimated net economic value of the Canal to the United States according to the analysis presented.

estimates of both effects in order to make comparisons.

The Effect of Monopoly Oil Pricing

The capital and operating cost of producing a marginal barrel of Middle East oil in 1972 was 10¢ (35), or in 1975 prices about 12.5¢. Thus, a marginal ton of oil (7 barrels approximately equals 1 ton) costs about 88¢ to produce. Yet this oil, after a minor amount of handling and processing, sells for about $90 a ton to shipowners as bunker fuel. The difference between what it costs to produce this oil and what it sells for is called an economic rent. Table 4-47 lists the number of additional tons of fuel oil which would have been consumed in 1975 as a result of a Canal closing.

Table 4-47

Incremental Fuel Oil Consumption
(millions of tons)

Suez Closed	Suez Open
10.46	8.76

Since the Middle East has the largest excess reserve capacity for oil production, most of the added oil consumed would be Middle East oil. Assuming that the 1975 price of $90 per ton of oil contains a rent factor amounting to 3/4 the price of the oil, the economic rent captured by the Middle East oil producers in 1975, following a Panama Canal closure, would be as shown in Table 4-48. The size of these rents has been accounted for in the analysis by using the price of fuel oil, not its production cost, in estimating willingness to pay for Panama Canal services.

Table 4-48

Middle East Oil Profit in 1975
(millions of 1975 U.S. dollars)

Suez Closed	Suez Open
706	591

Should losses of Middle East oil producers due to a Canal reopening be specificically recognized in allocating benefits? It is assumed here that they should not be recognized because if the oil is not sold in 1975 as a result of a Canal closure, it will be available for consumption at a later time. Thus, the Middle East incurs a cost when it sells a barrel of oil, the income foregone of not holding the barrel and selling later, perhaps at a higher price. Thus it is assumed here that the sum of the capital and operating cost of producing a barrel of oil plus the cost of future consumption possibilities foregone equals the going price of the oil.

Due to current imperfections in the oil marekt, this assumption may be less realistic than some other possible assumption. Were one to assume that the price of oil contained the costs listed above plus a profit factor or premium, then the analysis would be changed. The premium would constitute a transfer of purchasing power from oil consumers to oil producers. The aggregate consumption cost of consuming the oil would be reduced by the amount of the premium and consequently the aggregate consumption benefit of the Panama Canal would be reduced an equivalent amount.*

Oil prices play a direct role in determining the size of the Canal's economic value. When the price of oil increases the short-run economic value of the Canal rises because the cost of alternative transportation via rerouting increases. Each time the cost of rerouting rises, so will freight rates and,

* The estimated amount of discounted present premium payments would appear as a negative entry in the Middle East row of Table 4-44. The Sum of Benefits entry for the U.S. and all other world areas listed in Table 4-44 excluding the Middle East would be unaffected.

according to the analysis, the gross economic value of the Canal in the short run is equal to the incremental freight bill of rerouting up to the willingness to pay limit.

It may seem strange that a handful of oil ministers can affect the economic value of the Canal. One might think that the Canal's value was somehow insulated from the decisions of a few individuals in the Middle East, and should be dictated by the impersonal workings of the world shipping market. So long as the price of the marginal barrel of oil is being set by a few individuals, the market is not impersonal.

The Role of Toll Payments

Thus far the role of toll payments has been passed over. Their effect on the distribution of benefits and costs was accounted for when the net value of the Canal was estimated and then distributed among the various regions according to their share in Canal traffic, and according to price elasticities of demand and supply.

According to U.S. law, tolls must be set to recover the cost of the operation. Thus, when net benefits were distributed among the world regions, this produced approximately the same result as distributing gross benefits among the world regions and then subtracting toll payments by region.

The method used here of distributing the cost of the Canal operation among world regions only approximates the true bearers of the cost burden, however, as 1975 toll income did not completely cover costs (costs here being defined in the economic and not the accounting sense). Total toll income from the Canal in 1975 was $143.3 million (16, Table 6), but costs, as described

earlier, came to $197 million. The picture is complicated by the fact that toll income does not capture all the payments made by shipowners to transit the Canal since they must also pay for tugs, line handlers, and pilots over and above tolls. One must also deal with the complexities of costing due to capital costs of the Canal operation. The $197 million estimate for 1975 Canal costs might not be representative of future Canal costs because of the variability of the time pattern of capital investments. Depreciation and interest costs are an accounting method for smoothing out this variability but are not valid costs from an economic accounting as they tend to reflect historical investments which, from an economic view, are sunk costs and are not relevant for present and future decision-making. While $197 million may have been a good estimate of actual 1975 costs, 1976 costs may be quite different due to the variability of capital investments, e.g., lock overhauls, new building construction, locomotive purchases, and infrequent dredging operations. The Panama Canal Improvement Program of A.T. Kearney* was estimated to cost $100 million in 1969 dollars.

Therfore, it appears that the actual costs of the Canal operation are not being recovered from tolls and are being borne by the United States. This extra burden on the U.S. is not reflected in the calculations here. However, the Canal Company is aware that it is losing money** and now has before President Ford a proposal to change the toll system

*Improvement Program for the Panama Canal, 1969, report prepared for the Panama Canal Company by A.T. Kearney, Inc., Chicago, 1969.

**The Canal Company, using non-constant dollars in its accounting, counts interest and depreciation as a cost but not defense. On this basis they estimate their loss in 1974 exceeded $12 million (24, p. 26).

in order to raise revenues. If these plans succeed, and they should since the Company has the weight of the law behind it, some of the estimated deficit for the operation will be made up in future years and any remaining deficit will not be accounted for here.

Corrections for National Profitability Accounting

It was mentioned earlier in this chapter that market prices do not always properly reflect the social value of goods and services in an economy. This is especially true in underdeveloped countries and probably true in socialist and democratic developed countries. Project evaluators in these countries must carefully estimate the shadow wage of labor (which may be underemployed and thus worth less than its price), the shadow price of foreign exchange, the shadow price on investment and any multiplier effects brought about by the mobilization of otherwise idle resources as a result of respending of project benefits.

The shadow prices needed in the complete aggregate consumption accounting of the Panama Canal's net benefits are unknown. Nevertheless, it is important that the complete analysis be described and the probable effect of the shadow prices be discussed so that the figures of Table 4-44 may be properly interpreted. Furthermore, the principal management and construction alternatives for the Panama Canal, which will be analyzed on the basis of presently available data in Chapter 5, may be reanalyzed in the future if a draft treaty is ever produced for consideration by the U.S. Congress. As more data become available, it may be possible to perform a complete aggregate consumption accounting

of the effects of these alternatives, and for this reason it is important that the complete methodology be described.

The complete aggregate consumption analysis requires that:

1) All payments or resource flows, including consumer surplus, arising as a consequence of decision must be identified and separated into different groups according to the receiver or the payer's propensity to save out of income. For most projects, there will be a commercial or middle class of payers and receivers having one fairly uniform propensity to save, and a second class of laborers or lower class whose propensity to save is close to zero. The payments must also be separated so that factors whose productivity in the domestic market is known to diverge from the price it receives, e.g., otherwise unemployed labor, can be treated separately later in the analysis. Those payments made with foreign exchange or affecting the availability of foreign exchange must be separated from payments involving domestic currency;

2) The time stream of payments so far identified be discounted at the social rate of discount to yield a present value of the time streams. This step makes further manipulation of the data easier;

3) The resource flows, present valued in step three, be multiplied by the relevant shadow prices to correct for micro-economic market imperfections. These imperfections could include A) pollution charges and other positive and negative externalities; B) value of underemployed or rationed factors. Foreign exchange is frequently a rationed factor and would come under the B heading above;

4) The resource flows, be corrected for macroeconomic

imperfections by multiplying the discounted resource flows reaped or expended by the various consumer classes times the shadow price of investment. A different shadow price for each consumer class having a different propensity to save is necessary. The shadow price of investment reflects the excess of social value of funds devoted to investment over the social value of funds devoted to consumption when the investment of society as a whole is considered to be insufficient to achieve desirable rates of economic growth;

5) Finally, respending of benefits (or loss of respending due to net cost) should be recognized if idle resources are mobilized by the project. This is known as the multiplier effect.

As the rationale for some of these shadow prices is not generally known, a brief description of the theoretical basis will be presented below. The descriptions must start with the social rate of discount which is the weight used to compare the social willingness to pay for present versus future consumption.

Origin of the Social Rate of Discount

Marglin (2, pp. 47-69, and 36) has discussed at length the theoretical basis for social choice of interest rates for various alternatives. Put simply, investment, i.e., the setting aside of present consumption for the sake of future consumption, is subject to externalities such that "a political distillation of individual time preferences for consumption over investment may well be different from a market distillation of these preferences, and may be preferred by each to the market distillation" (37). This says that the interest rates of individuals revealed in the market-

place are not appropriate for collective decision-making and a social discount rate must be used which is politically determined.

For the economic objective the UNIDO Guidelines show (3, p. 165) that, for certain assumptions, the social rate of discount can be mathematically expressed as

i = - (elasticity of marginal utility with respect to per capita consumption) x (rate of growth of per capita consumption)

With negative elasticities of marginal utility, the social rate of discount varies directly with the rate of growth of per capita consumption. Thus, if the elasticity of marginal utility with respect to per capita consumption were -2.0, meaning that the social significance of extra consumption would decline two percent with each one percent increase in average consumption, then a rate of growth of per capita consumption of five percent would mean a social rate of discount of 10 percent. If anticipated rates of consumption growth are low, society may prefer more investment, encouraging growth. Since more investment will be encouraged by a lower social rate of discount, this shows that the formula is working properly. Expectations of high future income presumably encourage decision-makers to let future generations take care of themselves. A high social rate of discount is then appropriate, which discourages investment and encourages present consumption.

While the rate of growth of per capita income is a given datum or objective determinant, assuming that Panama Canal decisions do not have general equilibrium effects on the U.S. economy, the percent change in the social significance of extra consumption relative to the percent change in per capita income is a subjec-

tive determinant which must be determined by the decision-maker. There is little prospect that social decision-makers will become familiar with the theoretical underpinnings of this determinant. The next best alternative is to note that the forecast rate of growth for the U.S. economy in 1976 is about 6 percent and that in this context a high social rate of discount, say, 15 percent, implies a relatively greater preference for present consumption over future consumption.

The Shadow Price of Investment

Having discussed the social rate of discount, which is a weight describing the social preference for consumption in future periods relative to consumption in the present, the shadow price of investment may now be described. This shadow price is necessary to evaluate the social value of the productivity of investment. A unit of consumption set aside today in the form of capital will produce a larger unit of consumption in a future period. The shadow price of investment describes the social value of the future consumption produced.

Suppose a project is to be undertaken and the capital cost K_o is to be incurred in the first period with net benefits B_t produced in each of n subsequent periods. If the capital cost comes totally out of current consumption, society sacrifices this consumption and no investment effects are involved. Formula 4.2 describes the proper net present benefit criterion where i is the social rate of discount.

$$B^* = \sum_{t=1}^{n} \frac{B_t}{(1+i)^t} - K_o \qquad (4.2)$$

Suppose that the capital cost of the project comes completely

out of alternative investment. Then, for this portion of the project costs, the sacrifice of consumption is deferred until the time the displaced investments would themselves have yielded consumption benefits. Suppose $1 of displaced investment would have earned a perpetual time stream of $q per year (called a throwoff) which would have been immediately consumed as it became available. Then the capital cost component of the project's cost would equal

$$qK_o \sum_{t=1}^{\infty} \frac{1}{(1+i)^t} = \frac{qK_o}{i} \quad .$$

In this case, the shadow price of investment $p^{inv'}$ equals $\frac{q}{i}$. Were the growth rate of the economy deemed socially optimal, q and i would be equal and $p^{inv'}$ would equal 1. It is the externalities involved in investment decisions which result in a divergence between the productivity of investment and the social rate of discount. This divergence results in a non-unitary shadow price of investment.

The UNIDO Guidelines (3, pp. 173-200) describe the appropriate formulation for p^{inv} for various assumptions as to the source of investment funds and the use to which the returns from investment are put. The sources and uses depend on relative propensities to save and consume. The most general formulation is for the case of net resource flow to or from a factor having a marginal propensity to save or invest of s. Then the shadow price on the net yearly flow (or net present valued flow assuming all parameters are constant with time) is $p^{inv, corrected} = [(1-s) + sp^{inv}]$ where $p^{inv} = \frac{(1-s)q}{i-sq}$. p^{inv} is the shadow price of investment where 100 percent of the capital cost of a project

comes from alternative investment and s percent of the yearly perpetual throwoff q of the alternative investment would have been reinvested with the remaining throwoff consumed.

The Shadow Price of Foreign Exchange

An important shadow price for Panama Canal aggregate consumption accounting is that of foreign exchange. Foreign exchange is frequently a rationed commodity in underdeveloped countries. High living standards enjoyed by the affluent in developing countries creates a demand for consumer goods which cannot be met domestically. Since the affluent are also the most politically influential as a rule, it may be impossible for the Government to stem the import demand. But purchases of foreign goods requires foreign exchange and most developing countries are limited in their ability to expand exports as a means of balancing imports.

Balance of payments problems are revealed by the existence of discounts in some "free" markets for currencies, by periodic devaluations, by the existence of substantial tariff barriers, the existence of exports subsidies, quotas or outright prohibitions on some categories of imports. The need to resort to these policies is symptomatic of an undervaluation of foreign currencies in relating to the domestic currency: a rupee's worth of dollars provides goods worth more than a rupee in terms of aggregate consumption. In consequence, the shadow price of foreign exchange exceeds its nominal price.

The UNIDO Guidelines (3, pp. 215-218), among others, show that for the case of a project yielding n goods which would otherwise be imported the shadow price of foreign exchange P^f equals

$\sum_{i=1}^{n} f_i P_i^D / P_i^{cif}$ where f_i is the fraction of foreign exchange allocated to the ith of n commodities at the margin, P_i^D is the domestic market clearing price and P_i^{cif} is the cif* price in domestic currency calculated at the official rate of exchange. A similar formula can be developed for the case of a domestic product whose output is to be sold abroad.

Foreign exchange is important for the Panama Canal case because all Canal tolls must be paid in U.S. dollars. The aggregate consumption cost of the Canal operation, borne by the various world regions, should be measured in foreign exchange which costs these countries more than indicated above. Furthermore, the benefits produced by the Panama Canal are largely in the form of saved foreign exchange from each world region's viewpoint since increased ship usage would either have to be paid in foreign exchange , or would possibly result in a displacement of foreign exchange earnings. At least, these considerations would apply for 1975 Panama Canal benefits when the alternative to Panama Canal use is rerouting of the Panama Canal fleet of ships. For future years, determination of the foreign exchange component of benefits would require a detailed investigation of the trade patterns that would come into being and the transport modes that would be used if the Panama Canal were not available. It is clear that the Panama Canal has a significant effect on foreign exchange flow.

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*cif: cost, insurance and freight, or charged-in-full. The price of an imported good which includes the cost at origin (f.o.b.) and all additional shipping, handling, insurance and documentation costs, and export duties, but excluding import duties and taxes. Lightering and wharfage charges at point of destination may be paid by either the buyer or seller depending on the stipulations of their agreement, but cif usually excludes these charges.

Shadow Wage of Labor

The shadow wage of labor adjusts the value of payments to labor to reflect the value of labor in the economy. The wage bill of the Panama Canal Company is composed of payments to Panamanians and U.S. citizens. The wages paid to the Panamanians may overstate the value of their product displaced in the local economy. This follows because significant levels of unemployment exist in the Panamanian economy. Merril et al. (32, pp. 26 and 74) report that unemployment in Panama City has maintained a long-run level of 10 percent of the labor force, while 23.4 percent of the available work time of the agriculture labor force was not required for production in 1970. With these high levels of unemployment and underemployment, the wage bill of the Panama Canal operation, from a world viewpoint, should be reduced, as a first approximation, to near zero for Panamanian non-skilled workers.

This is only part of the story, however, as these wage payments are made in U.S. dollars, earning Panama foreign exchange. Furthermore, even though little productivity within Panama is foregone to employ Panamanian labor, wage payments transfer resources from Panama Canal beneficiaries to the workers. Insofar as Canal beneficiaries would otherwise have invested the resources, an aggregate consumption cost to the world may be incurred by transferring resources from investment to current consumption. The payments to Panamanian workers are not inconsequential since U.S. law requires that the U.S. minimum wage be paid to Panama Canal Company employees. Since Panama makes no such governmental intervention in domestic wage setting, the minimum wage to a Panamanian worker doing manual labor for

the Panama Canal Company may be three times the wage of a laborer doing equivalent work within Panama (38). These comments also apply to the employment of Panamanian domestics in the homes of the U.S. employees. Value added income earned by these domestics is one component of the transfer income reaped by Panama as a result of the presence of the Panama Canal.

From a world viewpoint, the aggregate consumption effect of paying income to labor in excess of the factor's aggregate consumption value is accounted for by first multiplying the payments times the relevant shadow price of investment. This shadow price depends on the relative propensities to save and consume of the payer. A shadow price of investment is also calculated for the laborers receiving the payment. The payments received by labor should also be multiplied times the shadow price of labor which reflects the divergence between size of labor wage and actual productivity in the domestic economy. The shadow premium will usually be a fraction, or if the alternative production of unskilled labor is zero, the premium will be zero. Finally, the resulting adjusted aggregate consumption payment of the payers is subtracted from the aggregate consumption income of the laborers to obtain the net effect of the payment. The case studies in the UNIDO handbook (3) on project evaluation provide several examples of the above-described calculation.

Aggregate Consumption Accounting from a World Viewpoint

A difficulty with aggregate consumption accounting is that the social rate of discount enters the analysis directly through the discounting step and indirectly via the shadow price of investment (P^{inv}). Since different societies may have different social

rates of discount, one cannot easily carry out an aggregate consumption analysis from a world viewpoint. Does one apply a different social rate of discount for each society, these being determined by legitimate aggregations of social preference? Since aggregate consumption accounting is preference-neutral regarding income to rich versus poor, this implies, rather, that a single global social rate of discount is appropriate for an aggregate consumption accounting of an international project from a world viewpoint. This is the argument for applying a single social rate of discount for a public domestic project even though various strata of the domestic economy may be affected differently.

How is one to aggregate in a legitimate fashion the social preferences of the world for economic growth versus present consumption? It is not clear how this might be done, even leaving aside certain theoretical difficulties. However, U.S. decision-makers might attempt to act as proxy for the world in determining the relevant social rate of discount. However, it is probable that U.S. decision-makers will find it very difficult to determine a social rate of discount for purely domestic accounting. To do so for global accounting is perhaps farfetched and will be for a number of years.

The Multiplier Effect

The final criterion relevant for Panama Canal aggregate consumption accounting is that of respending net benefits. Insofar as otherwise idle resources are activated by the respending of net benefits, net world aggregate consumption benefits will be increased. Respending may also have important redistribution effects in the sense of attracting wages and profit earnings to

regions such as Panama from other world areas. This latter effect was treated, in part only, above. Since the world economy was depressed in 1975 even without the Panama Canal being closed, closing the Canal with the resulting loss of benefits would have further depressed the world economy in the aggregate. Since downward multiplier effects of closing the Canal were avoided by keeping the Canal open (or in the context of the "without" case of re-opening a closed Panama Canal), the respending of net benefits of the Panama Canal in that year undoubtedly resulted in greater aggregate consumption benefits than was indicated in the resource flow estimates of Table 4-44. The UNIDO handbook (3, pp. 80-82) shows that, if the marginal propensity to respend benefits is y, the multiplier is 1/(1-y). Since the rounds of successive spending occur at progressively more distance in the future, discounting has the effect of making the present value of respending less than the function above indicates.

Summing Up the Aggregate Consumption Accounts

Table 4-44 represents the net resource flow, cash flow, or first approximation to the aggregate consumption accounting of the economic value of the Panama Canal. The theoretical basis of the shadow prices and the multiplier necessary for a complete social accounting of the economic value of the Panama Canal have been briefly described. A complete discussion of the social accounting criteria can be found in sources already cited.

The primary limitation on a complete aggregate consumption analysis of Panama Canal benefits is lack of supportable estimates of the

shadow prices, a lack which partly stems from lack of knowledge of the specific sources and objects of the resource flows.

It is worthwhile to conjecture as to the probable relation of true aggregate consumption Panama Canal benefits to the first approximation contained in Table 4-44. Since much of the Panama Canal benefit is probably in the form of foreign exchange, the gross aggregate consumption benefit of the Panama Canal should be larger than that implied by Table 4-44. Since costs are almost entirely in foreign exchange, these two must be larger, and the net effect is probably slightly positive. The effect of correcting for the shadow wage is also likely to increase the size of net benefits. Balancing these two effects is the cost of foregone investment stemming from the wage payments to Panama Canal Company Panamanian workers and any payments to other Panamanians whose employment is a consequence of the existence of the Panama Canal. Were resources not diverted, very likely a portion of the resources would have been invested since Panama Canal tolls come from fairly prosperous tradesmen and prosperous consumers and producers of internationally traded goods.* Investment very likely yields greater present discounted aggregate consumption benefits than does current consumption of the resources. It is not possible to determine whether the complete aggregate consumption benefits of the Panama Canal, from a world view, are apt to be larger or smaller than Table 4-44 implies. The case studies contained in UNIDO (3) reveal that the effect of the shadow prices may be to alter the first approximation of benefits by 200% either up or down.

*In those cases where producers of traded goods are governments, the propensity to invest may be close to unity, resulting in a high shadow price of investment.

The United States' aggregate consumption benefits from the Panama Canal are probably different than Table 4-44 implies. All Canal tolls are paid in U.S. dollars. This has the effect of creating a demand for dollars internationally, and thus reaps foreign exchange for the United States. However, the U.S. balance of trade is generally in surplus so that foreign exchange is not rationed domestically nor are there other constraints on the flow and use of foreign exchange which could cause domestic willingness to pay for it to exceed posted exchange rates. Thus, the resource flow benefits for the United States need not be adjusted for this shadow price.

Shadow wage prices are not relevant for adjusting the first approximation benefits of the Panama Canal for the United States. The shadow price of investment is quite important, however. Since U.S. entrepreneurs both bear the toll burden and reap gross benefits as a result of exporting and importing Panama Canal-transited commodities in international trade, the effect of applying the shadow price of investment to their payments would be to increase the size of the positive net benefits they reap. These benefits are shown in column 3, row 1, of Table 4-44. However, this shadow price would also increase the size of the negative benefit due to redistribution of income-earning activities to Panama. Overall, the effect of the shadow price of investment would be to increase the size, but not change the algebraic sign, of the entry for the United States in column 6 of Table 4-44. Respending and the resulting multiplier would also increase the size of the entry in column 6.

Interpretation of Results

Column 6 of Table 4-44 represents the results of this chapter. This column shows estimates of the first approximation to the net present aggregate consumption value of the Panama Canal, under the scenario of a sudden and permanent Canal closure, for various major geographical regions. It is evident that, depending on one's assumptions, the value of the Panama Canal to the United States may be somewhere between -$1.245 and +$.136 billion net present dollars, while the true aggregate consumption value may fall somewhere in a range three times as wide.

These figures are interesting for two reasons: 1) the aggregate consumption value of the Panama Canal to the United States is probably relatively small; and 2) the value may be negative. Compared to the U.S. present gross national product of approximately 1.6 trillion, these values are almost invisible, and compared to the net present value of the U.S. gross national product, which would be on the order of $20 trillion and is a better base against which to compare figures from Table 4-44, the Panama Canal is invisible. For better comparison, a nuclear aircraft carrier with its complement of aircraft costs about $2 billion and an antiballistic missile site costs about $6 billion. In short, the Panama Canal, from an economic view, is relatively unimportant for the United States and claims that it is somehow economically vital are unjustified.

Concern that the Panama Canal might be vital to the U.S. economy has arisen because 1) more than 15,000 total transits a year have been made at the Canal, although the number has not grown since 1967; and 2) about 66 percent of these transits

either originate from or are bound for U.S. ports. These observations combine to imply that about 10,000 Panama Canal transits a year are U.S.-related and imply to some that the Canal has a very large significance for the U.S. economy. Numbers like this are deceptive.

Robert Fogel has addressed an econometric examination of the contribution of railroads to U.S. economic growth in the 19th century. Many historians, based on the vast trackage laid and the great number of tons of cargo carried on railroads, have concluded that the railroads were indispensable for U.S. economic progress. Mr. Fogel has said:

> If the axiom of indispensability merely asserted that railroads were an efficient form of producing transportation services, there would be no reason to question it.... But the axiom of indispensability is not primarily a description of the performance characteristics of a particular innovation. The crucial aspect of the axiom is not what it says about the railroad; it is what it says about all things other than the railroad. The crucial aspect is the implicit assertion that the economy of the nineteenth century lacked an effective alternative to the railroad and was incapable of producing one.
>
> Evaluation of the axiom of indispensability thus requires not only an examination of what the railroad did but also an examination of what substitutes for the railroad could have done. (39)

Mr. Fogel ultimately concluded, on the basis of detailed studies of the relative costs of railroad, inland waterway and road-based transportation technologies, that no single innovation was vital for U.S. economic growth during the nineteenth century.

The same axiom applies to the Panama Canal. Sheer numbers of ships utilizing the Canal do not indicate much about the Canal's value. This was pointed out by Congressmen Leggett in the quotation opening this chapter. The number of Canal transits must be put in perspective relative to the cost of the alternatives

and generally these are inexpensive and readily available. So long as the Canal is the least-cost alternative, it will be heavily used, but, if its advantage is lost through competition, one would see a dramatic drop in its utilization.

The economic value of the Panama Canal is relatively small because the Canal is a labor-intensive operation utilizing relatively low technology. The fact that the Panama Canal authorities have recently found it necessary to raise the toll rates for the first time since the Canal was put on a self-sustaining basis in the 1950s is symptomatic of the problem. Labor costs are high and are pushing up the cost of the operation as it handles more and larger ships. Yet tolls can only rise until they equal the costs of short-run alternatives without affecting current traffic levels. If toll costs rise above the cost of long-run alternatives, long-run traffic levels will decline. Canal authorities are now concerned about the shrinking margin available between Canal operating costs and the cost of long-run alternatives.

It was assumed above that beyond 1985 the Panama Canal would still be the cheapest alternative, and thus continue to contribute to net present value. This assumption could have reasonably been different, especially if real labor costs of the Canal operation rise significantly relative to other costs. Changing the assumption would not have much impact on the first approximation estimate of the Panama Canal aggregate consumption value because almost all of the value of the Canal is contributed in the 1975-1985 period when frictions in the international marine transport and trade system are assumed to retard the conversion to low-cost alternatives following a Canal closure. By 1985, however, the

system is assumed to have converted and the margin between the Canal operating cost and the cost of alternatives is only $243 million a year. Discounting further reduces the significance of these benefits in present terms.

The fact that the net economic value of the Panama Canal for the United States, depending on one's assumptions, is negative might strike readers as unusual. It should be emphasized that these numbers are relevant for only one decision, to reopen a closed Panama Canal. This decision is not realistic. A better way to view these negative numbers is that they represent the cost paid to reap the military and political benefits of keeping the Panama Canal open. It would best suit U.S. interests to reap military and political benefits by maintaining an open Canal and also be paid for it, but this may not be the case.

The claim that the Panama Canal benefits many trading nations of the world appears to be generally correct. The positive direct benefits of the Canal to these regions is fairly large. However, the net effect of a Canal closure on these regions is less than their direct benefits because the indirect service-related benefits of the Canal are foregone by the regions and are a cost to them.

To put the net present value figures for the world regions in perspective, Table 4-49 presents the Gross Domestic Product of the eleven world regions. Gross Domestic Product (GDP) figures for 1975, as measured in 1975 dollars, will differ from GDPs of earlier years listed in the table due to economic growth and to inflation. The effect of the latter is to cheapen the value of the dollar, meaning that a given level of productivity must be measured using a larger number of 1975 dollars versus, for example,

1971 dollars. The discounted net benefits of Table 4-44 are generally less than 1/2 of a percent of the GDP's of Table 4-49. However, a one dollar increase in aggregate consumption benefits will not necessarily result in a one dollar increase in measured Gross Domestic Product. This follows because GDP estimating rules are not as comprehensive in their consideration of social economic criteria as are aggregate consumption accounting rules. While GDP is estimated at factor (or market) prices, these prices do not account for consumer surplus or for the microeconomic and macroeconomic market imperfections which are accounted for in aggregate consumption accounting. Due to the comprehensive nature of aggregate consumption accounting techniques, they are preferred to GDP accounting techniques for social project evaluation.

Table 4-49

Gross Domestic Product of World Regions*
(billions of current U.S. dollars of years indicated)

U.S.A.	1,298	(1973)
Japan	410	(1973)
Europe (Western Europe only)	1,026	(1972)
Canada	120	(1973)
Central America (excludes Cuba**)	50	(1972)
Oceania	59	(1972)
South America	129	(1972)
Asia (excludes Japan, China, Mongolia)	456	(1970)
West Indies	10	(1970)
Middle East	54	(1971)
Africa	83	(1971)

*Source: Department of Economics and Social Affairs, Statistical Office, Statistical Year Book 1974, United Nations, New York, 1975, pp. 604-607.

**Cuba's 1972 GNP was reported by Sivard to have been $6 billion. Sivard, R., World Military and Social Expenditures, 1974, published under the auspices of the Institute for World Order, New York, 1974.

Panama's desires to reap more benefits from the Canal operation can probably be met at a cost to the rest of the world.

In fact, if Panama were given free rein to set tolls, most of the direct value of the Canal could be captured by Panama by suddenly raising tolls and then convincing the shipping community that the increase is only temporary. Those who are not convinced will pay in the short run anyway, at least up to the point where it is equally costly to pay the toll or sail around the Cape. Since there is a considerable amount of game theory involved in such a situation, it is possible that Panama may fail badly in capturing benefits or may exceed by more than is estimated here for possible gains. It would depend on how high the toll was set and what shippers believed regarding the likely future level of the toll. Since game theory introduces considerations distinct from those found in a more certain world, Panama's presumed approach to setting tolls is quite different from Panama Canal Company thinking on the toll issue.

Changes in the Value of the Panama Canal

An interesting question one might raise is, What could happen that has not been thus far considered that either could increase or decrease the aggregate consumption value of the Canal to the world and to the United States? While no list of conceivable events can be exhaustive, some of the more probable or obvious events are here listed.

Events which could increase the value of the Canal relative to the value of other activities:

1) The price of oil or other commodities used for operating ships could increase;

2) Labor strikes on ships, in ports, or in transport modes competitive to the use of the Panama Canal;

3) Natural or man-made disasters which can be assuaged via moving men and goods on a large scale and between the oceans;

4) Legal changes in ship usage which would restrict the efficiency or raise the cost of ships. These might include requirements for double bottoms or for segregated ballast, greater power, better communications or more highly trained crews which would earn higher wages;

5) World economic boom and resulting boom in international trade;

6) General lowering of international trade barriers;

7) A persistent U.S. balance of payments deficit. In this case the foreign exchange which the United States saves as a result of Panama Canal operation would have a shadow price exceeding its nominal exchange rate.

Events which would decrease the economic value of the Panama Canal:

1) New transport modes could be developed in competition with the Canal such as more efficient U.S. railroads, perhaps coupled with deeper and more modern ports in the United States and elsewhere, or the construction of transcontinental pipelines for transporting oil and slurry solids or technological advances leading to better, bigger or faster ships;

2) A favorable court ruling on the U.S.-minibridge and land-bridge operations or changes in the regulation of the U.S. railroads so as to make them more compe-

titive;

3) Strikes against the Panama Canal Company by its workers could lower the reliability or quality of the Canal operation and make use of the Canal less attractive to shippers;

4) Excessive or inappropriate toll increases or changes in the rate structure could make the Canal materially less attractive for shippers;

5) A world depression and resulting contraction of international trade;

6) A general increase in barriers to international trade;

7) A persistent U.S. balance of payments surplus which results in an undervalued domestic currency. In this case foreign currency would have a shadow price less than its nominal exchange rate.

Previous Studies

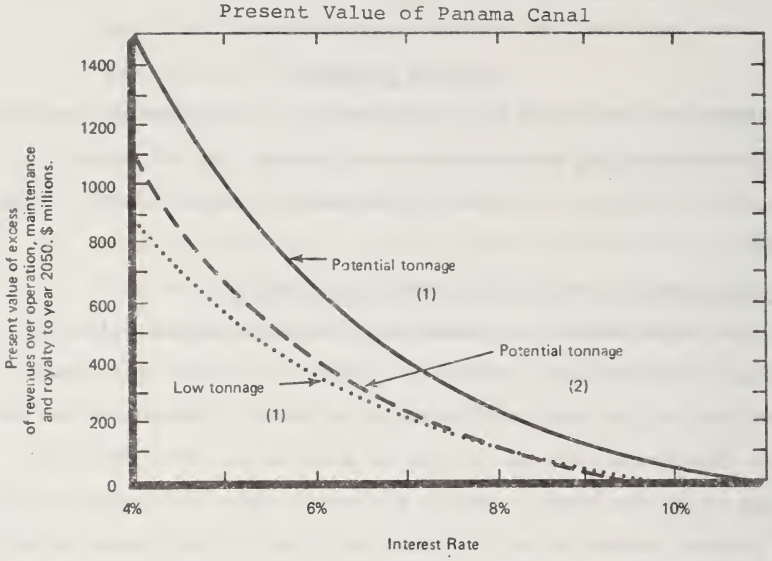
This evaluation of the Panama Canal in its present configuration, and under its present operating policy, is concluded with comments on previous studies of the economic value of the Panama Canal.

The Interoceanic Canal Study Commission Report

The first effort to assess the Canal's economic value, excluding investigations undertaken before and during the Canal's construction, was made by the Atlantic-Pacific Interoceanic Canal Study Commission (10, pp. III-22 to III-24) in 1970, often referred to as the IOCSC. Figure 4-6 plots their estimates of the net present excess of toll income over cost of the Panama Canal against discount rates for three different traffic forecasts. Their analysis assumed that political constraints would limit the level of actual tolls to $0.884 per long ton, which at that time was the average effective toll rate. They assumed that collectable toll income determined economic value. Further, they assumed that the sunk cost of building the Canal, listed in the Canal Company's books as $317 million, counted as a present cost. A royalty of $0.22 per cargo ton over and above tolls was assumed to be assessed to cover payments to Panama.

The IOCSC effort is mysterious. By law, toll income cannot exceed Canal operating and maintenance costs. Yet, if the toll is not raised above $0.88 per ton which just covers costs, how

Figure 4-6



NOTES:

1. Tolls assumed as $0.884 per cargo ton.
2. Tolls based on existing Panama Canal System.
3. 1970 PCC debt of $317 million and $92 million improvement costs assumed paid out first.
4. Royalties reach $0.22 per cargo ton in 1976.
5. Neither deep draft locks nor replacement locks assumed to be constructed.

IOCSC, p. III-24.

can net present income ever be positive? Thus, some of the assumptions of the IOCSC analysis appear to be inconsistent. Further, as has been described above, the first approximation to economic value is equal to individual willingness to pay which may exceed politically dictated toll levels.

The Economic Commission of Latin America Study

A second attempt to assess the economic value of the Panama Canal was made by the Economic Commission of Latin America (ECLA) in 1971 (40). This study, issued in Spanish in provisional form only, is not generally available. It assumes that the only alternative to the Panama Canal for all time is rerouting of ships around the Capes of Good Hope and Horn. Using the cost of rerouting the fleet of ships normally using the Canal, the study, in effect, constructed a short-run demand curve for Panama Canal services. The analysts then estimated the toll level which would maximize toll income from the Canal operation using the Panama Canal toll system. They concluded that toll rates could be raised by a factor of 3.3 and that maximum toll income derived at these rates minus Canal Company operating costs constituted the economic value of the Canal in the first year. For succeeding years, the first-year value was multiplied by the ratio of succeeding year cargo estimates to the first-year cargo experience. The sum of 10 years' benefits was then presented as the economic value of the Canal.

This study, while more elaborate than the IOCSC effort, made several theoretical errors. Rerouting of all ships is not likely as an alternative even for just the first year. Over a 10-year period many other alternatives become relevant. Per-

haps this problem arose because the investigators did not establish a benchmark against which to properly measure the Canal's effect on commerce. Further, the mistake was made of assuming economic value is equal to toll income when, in fact, it is the entire area under the demand curve that counts. Toll systems must be practical and thus are usually not fine-meshed enough to capture all benefits so that a consumer's surplus is usually left over. The ECLA study neglected to estimate this surplus and thus undercounted benefits on this score, while overcounting benefits due to their assumption regarding ship rerouting as the only alternative. Finally, the study did not consider discounting benefits earned in future years for present evaluation, nor did it consider that benefits beyond 10 years in the future can be relevant for present decisions.

The International Research Associates Studies

The Economic Value of the Panama Canal was prepared in 1973 by the International Research Associates (IRA) for the Panama Canal Company (24). Data on the long-run demand curve for Panama Canal services, presented earlier, were obtained from this report. The IRA study based its analysis of the economic value of the Canal on the following assumptions:

1) The gross value of the Canal is equal to the maximum revenues collectable from Canal users;
2) Maximum collectable revenues both in the short run and the long run should be estimated based only on long-run market conditions;
3) The aggregate comsumption cost of the Canal operation is the cost of operation and maintenance of the Canal

but excludes the cost of the Canal Zone Government;

4) Cost or benefits incurred in different years need not be discounted to the present;

5) All benefits accrue to either buyers or sellers of Panama Canal-transited commodities;

6) The benefits of trade are proportional to the tonnage of cargo traded;

7) Benefits on a given trade route are split 50/50 between buyers and sellers.

The assumption that maximum collectable revenue is equal to the gross economic value of the Panama Canal is the same as the assumption that gross economic value is the area under the demand curve if a perfect toll system could be devised to capture these benefits in the form of tolls. It may be impossible, however, for any feasible toll system to capture all the economic benefits produced by the Canal. The IRA study estimates the 1985 demand curve for each of 23 commodities and commodity groups and then calculates, by commodity group, the maximum collectable toll revenue, assuming a constant toll price is charged for each commodity group. Figure 4-7 illustrates this method.

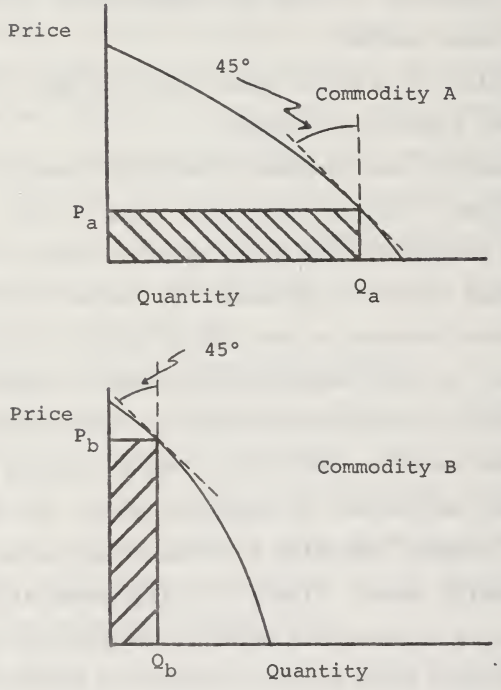
The selected maximum toll price is the price at which the slope of the demand curve is 45° or where the price elasticity of demand is 1.

The hatched area in Figure 4-7 represents the estimated maximum toll revenue for each commodity type. Note that the hatched area underrepresents the total area under the demand curve of the commodity and thus gross Canal benefits are underestimated.

FIGURE 4-7

Long-Run Demand Curves and

Theoretical Collectable Revenue



Having obtained an estimate of the long-run maximum price which each commodity group would bear, these prices were assumed to be applicable to 1975 traffic levels to establish a gross maximum collectable toll revenue. This maximum revenue worked out to $185 million and was declared to be the 1975 economic value of the Canal. It was stated previously that the short-run value of the Panama Canal is equal to the willingness to pay for Panama Canal alternatives. In 1975, the available alternatives would be much more limited than they would be in the long run, after a period of adjusting to the absence of the Canal. To impute 1985 market conditions resulting from Panama Canal toll increases to 1975 is theoretically incorrect.

The assumption that the cost of the Canal Zone Government is not part of the input for the Canal operation implies that should be Canal be permanently shut down all functions of the Canal Zone Government would continue. Yet, without a canal, there would be no need for personnel to operate it, and thus no need for fire and police protection, etc., for the personnel, and thus no need for the Canal Zone Government. More likely, Canal Zone Government costs are properly part of the costs of the Canal operation.

Usually, aggregate consumption benefits available today are more valuable than if available tomorrow. Therefore, benefits reaped in future years should be discounted to the present.

The assumption that Canal benefits are reaped by commodity exporters in the form of higher f.o.b. prices, and by commodity importers in the form of lower c.i.f. prices

was adopted in the present study.

The assumption that total benefits can be divided up according to cargo tonnage movements was made here as well as by IRA. While a computational convenience, this assumption overlooks the variability in the distribution of benefits on a given trade route due to the particulars of route length and available alternatives for transport. Further, it does not account for possible changes in the pattern of cargo movements which would likely follow a Canal closure. This variability could have been recognized if the analysis presented here were carried out for each trade route by individually costing the particular ships moving on that route and the particular alternatives available for trade. The results could then be added up by region or country, rather than by adding up the benefits as a total and then parceling them out according to cargo tonnage. Given the difficulties and uncertainties involved in such an elaborate analysis, the possible added accuracy produced do not seem to make it a worthwhile pursuit.

The assumption that benefits on a given route are always split 50/50 overlooks the fact that many developed countries are thought to have a relatively high elasticity of demand for the raw materials they import from developing countries. Conversely, many developing countries are thought to have a relatively lower elasticity of demand for imported manufactured goods. This difference produces a pattern in the sharing of the benefits of trade which generally gives the developing countries the greater share of benefits resulting from transport cost decreases and a greater share of the burden when costs rise.

Lastly, IRA assumed that benefits would grow with time at the same rate as Panama Canal cargo tonnage has grown, i.e., 4.2 per-

cent. A slightly lower figure was adopted for analysis here.

On the basis of the above assumptions, the 1973 IRA study (24) put the net economic value of the Panama Canal to the world in 1975 at $93 million, for 1980 at $98 million, and for 1985 at $120 million, with a total of $1 billion for the decade, or approximately one-sixth of the estimated first approximation to the aggregate consumption value of the Canal presented here. The U.S. share of these benefits was put at $32 million in 1975 with no figure given for future years. The very large effect of redistribution payments to Panama, rivaling the net economic value of the Canal, was not noted.

In 1974, IRA made a second study which estimated the short-term value of the Canal, making the more realistic assumption that only alternatives available in the short run should be considered (6). The 1974 IRA study makes the following assumptions:

1) The benefit of the Panama Canal is equal to the willingness to pay for alternatives available at the time;
2) The short-run value of the Canal in 1973 can be assessed by comparing continued Canal operation to the benchmark of sudden, unannounced Canal shutdown;
3) Following a Panama Canal closure, freight rates would soar as would additional payments necessary to defray these higher rates. Having no reliable method to estimate these costs, "...an arbitrary estimate of $150 million is made...";
4) In the short run, the only available alternative for 70 percent of Panama Canal cargo will be to continue

employing the Panama Canal fleet of ships, sailing them on longer routes around the Cape of Good Hope and Cape Horn (rerouting) with the Suez Canal being assumed as closed;

5) For 30 percent of Canal cargo, the closing of the Panama Canal will lead to substitution of markets and sources (rearranging) during the first year. For this share of traffic, it was assumed that the additional costs, on a per ton basis, incurred by the buyers and sellers, would be less by one-half than the additional costs incurred by the buyers and sellers whose shipments were continued via rerouting.

In order to estimate the maximum willingness to pay in the first year after a Canal closure, the second IRA study employed the results of the ECLA study mentioned earlier. The ECLA study assumed that the only alternative to use of the Panama Canal was rerouting. Based on the estimated costs of rerouting, the ECLA study found that toll rates could be raised 230 percent to maximize toll income. Since the second IRA study estimated that only 70 percent of cargo would be rerouted in the first year following a Canal closure, it concluded that 0.7 x 3.3 x $111 = $256 million was the gross willingness to pay of 70 percent of Panama Canal cargo traffic, where $111 million was the 1973 Panama Canal commercial traffic toll income.

For the remaining 30 percent of Panama Canal cargo traffic, the second IRA study assumed that the average additional willingness to pay would be midway between the present toll level and the average rerouting cost suggested in its calculations for the

other 70 percent. Thus, 3.3 x 0.3/2 x $111 = $72 million, which is the willingness to pay for Canal service for this portion of Canal traffic.

The sum of the three estimated components of alternative costs comes to $150 + $256 + $72 = $478 million, which is the second IRA study's estimate of the first-year gross economic value of the Panama Canal. The net benefit was figured as the gross benefit minus the cost of operating the Canal, which was assumed to equal the receipts from tolls, or $111 million. Thus, the net benefit was estimated at $367 million and, in accordance with the share of long-term benefits calculated in the first IRA study, the short-term share accruing to the United States was put at one-third of the total, or $122 million.

These figures may be compared to the estimates of net 1975 benefit derived here which are in the range of $1.7 to $1.9 billion. although the comparison is not really fair because the fourfold increase in the price of oil has the effect of increasing the economic value of the Canal in excess of what would have occurred between 1973 and 1975 due to traffic growth. The oil price increase made pre-price increase studies out of date.

It was observed earlier that maximum collectable tolls are not a good estimator for benefits since tolls cannot capture all benefits, and estimates based on collectable tolls must inevitably undercount benefits. Also, Canal Company costs are not the only costs of the Panama Canal enterprise. Canal Zone Government costs must be included also.

One might reasonably ask why it is that some of the IRA results have been adopted in this study if many aspects of these

studies are incorrect. The IRA work reflects mainly a lack of understanding of the relation between willingness to pay and tolls, and of a clear concept of intertemporal preference. Neither of these shortcomings affects their findings that in the short run about 70 percent of Panama Canal cargo traffic would be rerouted if the Canal were to close, with the remaining 30 percent rearranged at lower cost than rerouting. These findings were highly useful and the results related here would have been much less certain and less creditable without them.

The United States Maritime Administration Study

The most recent effort to estimate the economic value of the Canal, or at least its value to the United States, was undertaken by the U.S. Maritime Administration (MARAD) in 1974 (41). The study assumed that rerouting was the only alternative to using the Panama Canal, that willingness to pay equaled incremental cargo freight rate, and that the percentage of additional sailing distance undertaken on the five trade routes accounting for most U.S. trade through the Canal following a Canal closure could be multiplied times the relevant freight rate for the commodities moving on the routes to get post-Canal closure freight rates. The increments in freight rate were then multiplied times the cargo tonnages to get a total rerouting bill which was assumed to be borne exclusively by the United States. An additional inventory cost due to delaying cargoes was added. The study concluded that closing the Canal would cost the United States $1,515 million per year.

The study failed for several reasons. It did not identify which cargoes moved on which trade routes. Rather, it assumed

that each trade route was a microcosm of Panama Canal trade, dividing the total tonnage which moved on the route into commodity categories according to the commodity's share of total Panama Canal cargo tonnage. Since some trade routes carry almost no grain while others carry most of the Canal-transited tons of coal, such an aggregate approach is bound to be inaccurate.

All cost increases were assumed to be borne by the United States, whereas it was pointed out above that developing countries generally bear the brunt of cost increases and reap the gains from transport cost decreases when dealing with developed countries. In no case can one assign all the cost increases to the United States.

Each Panama Canal route mileage was listed a factor of two too large, evidently because the researchers believed that every trip a ship makes is composed of an outward laden voyage followed by a homeward voyage in ballast. In fact, most ships are never in ballast, and only about 14 percent of all Canal transits are made in this mode. This assumption had the effect of doubling the route lengths assumed, and of doubling the estimated total incremental miles traveled following a Canal closure. This had no effect on the estimated percentage incremental freight rate, since doubling the numerator and denominator of a ratio does not change its size. However, it did double the size of the inventory cost.

The general idea that willingness to pay for Canal services is equal to the incremental freight charges in the first year following a Canal closure (for 70 percent of Canal traffic) is correct, but the study demonstrated such a lack of knowledge of econ-

omic principles that it shed little light on the problem. Further criticisms of this study can be found in reference (19). Finally, the study failed to address the redistributional effects of Panama's value added shipping services.

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[Whereupon, at 12:45 p.m. the subcommittee adjourned.]

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